Home Theater DVD Player

HTS3531/12/51/94/98/F7/55/78/93

Service
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Service Manual

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**CLASS 1
LASER PRODUCT**

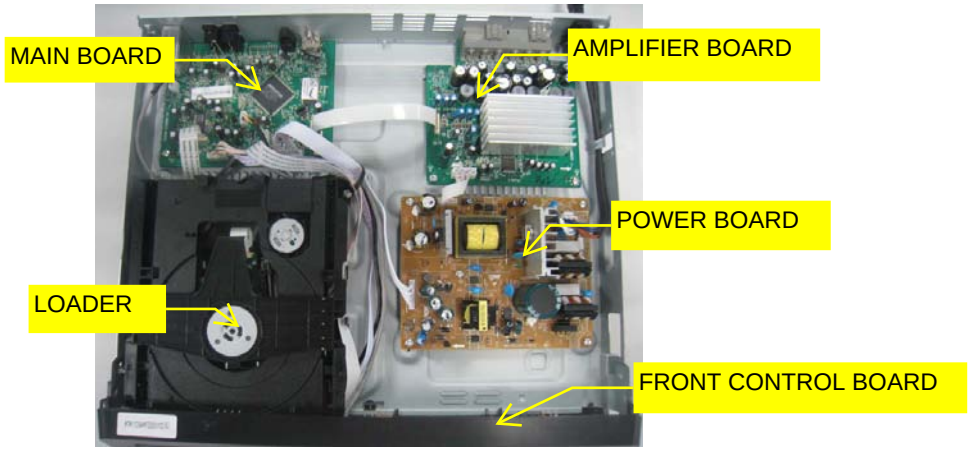
Published by RY&LLL - 1147 BU AVM Printed in The Netherlands Subject to modification

GB 3139 785 35843

Version 1.3

PHILIPS

PCB BOARD LOCATION:



Version Variation

Type/Versions / Features	HTS3531							
	/12	/51	/94	/98	/F7	/55	/78	/93
Output Power- 300W	X	X	X	X	X	X	X	X
Voltage(220~240V~)	X	X	X					X
Voltage(110~240V~)				X	X	X	X	
MP3 LINK	X	X	X	X	X	X	X	X

Repair Scenario Matrix

Type/Versions / Board in used	HTS3531							
	/12	/51	/94	/98	/F7	/55	/78	/93
Main Board	B	B	C	C	C	C	C	C
Front Control Board	B	B	C	C	C	C	C	C
Amplifier Board	B	B	C	C	C	C	C	C
Power Board	B	B	C	C	C	C	C	C

***Bd:Board Level Replacement**

***C:Component Level Repair**

HTS3531/12/55/78:

Product Specifications:

Note

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Region codes

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Russia, India	ALL 5
China	ALL 6

Media formats

- DVD-Video, DVD+R/+RW, DVD-R/-RW, DVD+R/-R DL, CD-R/CD-RW, Audio CD, Video CD/SVCD, Picture files, MP3 media, WMA media, DivX media, USB storage device

File formats

- Audio: .mp3, .wma
- Video: .avi, .divx, .mpg, .mpeg,
- Picture: .jpg, .jpeg

Amplifier

- Total output power: 300W RMS (30% THD)
- Frequency response: 20 Hz-20 kHz / ±3 dB
- Signal-to-noise ratio: > 65 dB (CCIR) / (A-weighted)
- Input sensitivity:
  - AUX: 2 V
  - Music iLink: 1 V

Video

- Signal system: PAL / NTSC
- HDMI output: 480i/576i, 480p/576p, 720p, 1080i, 1080p

Audio

- S/PDIF Digital audio input:
  - Optical: TOSLINK
- Sampling frequency:
  - MP3: 32 kHz, 44.1 kHz, 48 kHz
  - WMA: 44.1 kHz, 48 kHz
- Constant bit rate:
  - MP3: 32 kbps - 320 kbps
  - WMA: 64 kbps - 192 kbps

Radio

- Tuning range:
  - Europe/Russia/China: FM 87.5-108 MHz (50 kHz)
  - Asia Pacific/Latin America: FM 87.5-108 MHz (50/100 kHz)
- Signal-to-noise ratio: FM 50 dB
- Frequency response: FM 200 Hz-12.5 kHz / ±6 dB

USB

- Compatibility: Hi-Speed USB (2.0)
- Class support: USB Mass Storage Class (MSC)
- File system: FAT16, FAT32
- Maximum memory support: < 160 GB

Main unit

- Power supply:
  - Europe/China/Russia/India: 220-240V, ~50 Hz
  - Latin America/Asia Pacific: 110-240V ~50-60 Hz
- Power consumption: 55 W
- Standby power consumption: ≤ 0.9 W
- Dimensions (WxHxD): 360 x 58 x 325 mm
- Weight: 2.3 kg

Subwoofer

- Output power: 50 W RMS (30% THD)
- Impedance: 4 ohm
- Speaker drivers: 133 mm (5.25") woofer
- Dimensions (WxHxD): 160 x 265 x 265 mm
- Weight: 2.5 kg
- Cable length: 3 m

Speakers

Center speaker:

- Output power: 50 W RMS (30% THD)
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- Speaker impedance: 4 ohm
- Speaker drivers: 1 x 63.5 mm (2.5") woofer
- Dimensions (WxHxD): 159 x 84.5 x 80 mm
- Weight: 0.35 kg
- Cable length: 2 m

Front/Rear speaker:

- Output power: 4 x 50 W RMS (30% THD)
- Speaker impedance: 4 ohm
- Speaker drivers: 1 x 63.5 mm (2.5") full range
- Dimensions (WxHxD): 84.5 x159 x 80mm
- Weight (front): 0.35 kg/each
- Weight (rear): 0.35 kg/each
- Cable length (front): 4 m
- Cable length (rear): 10 m

Remote control batteries

- 2 x AAA-R03-1.5 V

Laser

- Type: Semiconductor laser GaAIAs (CD)
- Wave length: 645 - 665 nm (DVD), 770 - 800 nm (CD)
- Output power: 6 mW (DVD), 7 mW (VCD/CD)
- Beam divergence: 60 degrees.

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- Audio: .mp3, .wma
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- Signal-to-noise ratio: FM 50 dB
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- Compatibility: Hi-Speed USB (2.0)
- Class support: USB Mass Storage Class (MSC)
- File system: FAT16, FAT32
- Maximum memory support: < 160 GB

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Center speaker:

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- Dimensions (WxHxD): 159 x 84.5 x 80 mm
- Weight: 0.35 kg
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Front/Rear speaker:

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- Dimensions (WxHxD): 84.5 x159 x 80mm
- Weight (front): 0.35 kg/each
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- Cable length (front): 4 m
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Remote control batteries

- 2 x AAA-R03-1.5 V

Laser

- Type: Semiconductor laser GaAlAs (CD)
- Wave length: 645 - 665 nm (DVD), 770 - 800 nm (CD)
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- Beam divergence: 60 degrees.

HTS3531/94

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- Audio: .mp3, .wma
- Video: .avi, .divx, .mpg, .mpeg,
- Picture: .jpg, .jpeg

Amplifier

- Total output power: 300W RMS (30% THD)
- Frequency response: 20 Hz-20 kHz / ±3 dB
- Signal-to-noise ratio: > 65 dB (CCIR) / (A-weighted)
- Input sensitivity:
  - AUX: 2 V
  - Music iLink: 1 V

Video

- Signal system: PAL / NTSC
- HDMI output: 480i/576i, 480p/576p, 720p, 1080i, 1080p

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- S/PDIF Digital audio input:
  - Optical: TOSLINK
- Sampling frequency:
  - MP3: 32 kHz, 44.1 kHz, 48 kHz
  - WMA: 44.1 kHz, 48 kHz
- Constant bit rate:
  - MP3: 32 kbps - 320 kbps
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Radio

- Tuning range:
  - Europe/Russia/China: FM 87.5-108 MHz (50 kHz)
  - Asia Pacific/Latin America: FM 87.5-108 MHz (50/100 kHz)
- Signal-to-noise ratio: FM 50 dB
- Frequency response: FM 200 Hz-12.5 kHz / ±6 dB

USB

- Compatibility: Hi-Speed USB (2.0)
- Class support: USB Mass Storage Class (MSC)
- File system: FAT16, FAT32
- Maximum memory support: < 160 GB

Main unit

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- Standby power consumption: ≤ 0.9 W
- Dimensions (WxHxD): 360 x 58 x 325 mm
- Weight: 2.3 kg

Subwoofer

- Output power: 50 W RMS (30% THD)
- Impedance: 4 ohm
- Speaker drivers: 133 mm (5.25") woofer
- Dimensions (WxHxD): 160 x 265 x 265 mm
- Weight: 2.5 kg
- Cable length: 3 m

Speakers

Center speaker:

- Output power: 50 W RMS (30% THD)
- System: 1 x 63.5 mm (2.5") full range
- Speaker impedance: 4 ohm
- Speaker drivers: 1 x 63.5 mm (2.5") woofer
- Dimensions (WxHxD): 159 x 84.5 x 80 mm
- Weight: 0.35 kg
- Cable length: 2 m

Front/Rear speaker:

- Output power: 4 x 50 W RMS (30% THD)
- Speaker impedance: 4 ohm
- Speaker drivers: 1 x 63.5 mm (2.5") full range
- Dimensions (WxHxD): 84.5 x159 x 80mm
- Weight (front): 0.35 kg/each
- Weight (rear): 0.35 kg/each
- Cable length (front): 4 m
- Cable length (rear): 10 m

Remote control batteries

- 2 x AAA-R03-1.5 V

Laser

- Type: Semiconductor laser GaAlAs (CD)
- Wave length: 645 - 665 nm (DVD), 770 - 800 nm (CD)
- Output power: 6 mW (DVD), 7 mW (VCD/CD)
- Beam divergence: 60 degrees.

HTS3531/98

Product Specifications:

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Media formats

- DVD-Video, DVD+R/+RW, DVD-R/-RW, DVD+R/-R DL, CD-R/CD-RW, Audio CD, Video CD/SVCD, Picture files, MP3 media, WMA media, DivX media, USB storage device

File formats

- Audio: .mp3, .wma
- Video: .avi, .divx, .mpg, .mpeg,
- Picture: .jpg, .jpeg

Amplifier

- Total output power: 300W RMS (30% THD)
- Frequency response: 20 Hz-20 kHz / ±3 dB
- Signal-to-noise ratio: > 65 dB (CCIR) / (A-weighted)
- Input sensitivity:
  - AUX: 2 V
  - Music iLink: 1 V

Video

- Signal system: PAL / NTSC
- HDMI output: 480i/576i, 480p/576p, 720p, 1080i, 1080p

Audio

- S/PDIF Digital audio input:
  - Optical: TOSLINK
- Sampling frequency:
  - MP3: 32 kHz, 44.1 kHz, 48 kHz
  - WMA: 44.1 kHz, 48 kHz
- Constant bit rate:
  - MP3: 32 kbps - 320 kbps
  - WMA: 64 kbps - 192 kbps

Radio

- Tuning range:
  - Europe/Russia/China: FM 87.5-108 MHz (50 kHz)
  - Asia Pacific/Latin America: FM 87.5-108 MHz (50/100 kHz)
- Signal-to-noise ratio: FM 50 dB
- Frequency response: FM 200 Hz-12.5 kHz / ±6 dB

USB

- Compatibility: Hi-Speed USB (2.0)
- Class support: USB Mass Storage Class (MSC)
- File system: FAT16, FAT32
- Maximum memory support: < 160 GB

Main unit

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- Power consumption: 55 W
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- Dimensions (WxHxD): 360 x 58 x 325 mm
- Weight: 2.3 kg

Subwoofer

- Output power: 50 W RMS (30% THD)
- Impedance: 4 ohm
- Speaker drivers: 133 mm (5.25") woofer
- Dimensions (WxHxD): 160 x 265 x 265 mm
- Weight: 2.5 kg
- Cable length: 3 m

Speakers

Center speaker:

- Output power: 50 W RMS (30% THD)
- System: 1 x 63.5 mm (2.5") full range
- Speaker impedance: 4 ohm
- Speaker drivers: 1 x 63.5 mm (2.5") woofer
- Dimensions (WxHxD): 159 x 84.5 x 80 mm
- Weight: 0.35 kg
- Cable length: 2 m

Front/Rear speaker:

- Output power: 4 x 50 W RMS (30% THD)
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- Weight (front): 0.35 kg/each
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- Cable length (front): 4 m
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Remote control batteries

- 2 x AAA-R03-1.5 V

Laser

- Type: Semiconductor laser GaAlAs (CD)
- Wave length: 645 - 665 nm (DVD), 770 - 800 nm (CD)
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HTS3531/F7

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Media formats

- DVD-Video, DVD+R/+RW, DVD-R/-RW, DVD+R/-R DL, CD-R/CD-RW, Audio CD, Video CD/SVCD, Picture files, MP3 media, WMA media, DivX media, USB storage device

File formats

- Audio: .mp3, .wma
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  - Music iLink: 1 V

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- Signal system: PAL / NTSC
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HTS3531/93

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Subwoofer

- Output power: 50 W RMS (30% THD)
- Impedance: 4 ohm
- Speaker drivers: 133 mm (5.25") woofer
- Dimensions (WxHxD): 160 x 265 x 265 mm
- Weight: 2.50 kg
- Cable length: 3 m

Speakers

Center speaker:

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- Dimensions (WxHxD): 84.5 x159 x 80mm
- Weight (front): 0.35 kg/each
- Weight (rear): 0.35 kg/each
- Cable length (front): 3 m
- Cable length (rear): 7 m

Remote control batteries

- 2 x AAA-R03-1.5 V

Laser

- Type: Semiconductor laser GaAlAs (CD)
- Wave length: 645 - 665 nm (DVD), 770 - 800 nm (CD)
- Output power: 6 mW (DVD), 7 mW (VCD/CD)
- Beam divergence: 60 degrees.

Safety instruction, Warning & Notes

Safety instruction

1. General safety

Safety regulations require that during a repair:

. Connect the unit to the mains via an isolation transformer.

. Replace safety components indicated by the symbol ⚠, only by components identical to the original ones. Any other component substitution (other than original type) may increase risk of fire or electrical shock hazard.

Safety regulations require that after a repair, you must return the unit in its original condition. Pay, in particular, attention to the following points:

. Route the wires/cables correctly, and fix them with the mounted cable clamps.

. Check the insulation of the mains lead for external damage.

. Check the electrical DC resistance between the mains plug and the secondary side:

1) Unplug the mains cord, and connect a wire between the two pins of the mains plug.
2) Set the mains switch the "on" position (keep the mains cord unplug).
3) Measure the resistance value between the mains plug and the front panel, controls, and chassis bottom.
4) Repair or correct unit when the resistance measurement is less than 1MΩ.
5) Verify this, before you return the unit to the customer/user (ref. UL-standard no. 1492).
6) Switch the unit "off", and remove the wire between the two pins of the mains plug.

2.Laser safety

This unit employs a laser. Only qualified service personnel may remove the cover, or attempt to service this device (due to possible eye injury).

Laser device unit

Type : Semiconductor laser GaAlAs

Wavelength : 650nm (DVD)

: 780nm (VCD/CD)

Output power : 7mW (DVD)

: 10mW (DVD /CD)

Beam divergence: 60 degree

Note: Use of controls or adjustments or performance of procedure other than those specified herein, may result in hazardous radiation exposure. Avoid direct exposure to beam.

Warning

1.General

. All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD). Careless handing during repair can reduce life drastically. Make sure that, during repair, you are at the same potential as the mass of the set by a wristband with resistance. Keep components and tools at this same potential. Available ESD protection equipment:

1) Complete kit ESD3 (small tablemat, wristband, connection box, extension cable and earth cable) 4822 310 10671.
2) Wristband tester 4822 344 13999.

. Be careful during measurements in the live voltage section. The primary side of the power supply , including the heat sink, carries live mains voltage when you connect the player to the mains (even when the player is “off”!). It is possible to touch copper tracks and/or components in this unshielded primary area, when you service the player. Service personnel must take precautions to prevent touching this area or components in this area. A “lighting stroke” and a stripe-marked printing on the printed wiring board, indicate the primary side of the power supply.

. Never replace modules, or components, while the unit is “on”.

2. Laser

. The use of optical instruments with this product, will increase eye hazard.

. Only qualified service personnel may remove the cover or attempt to service this device, due to possible eye injury.

. Repair handing should take place as much as possible with a disc loaded inside the player.

. Text below is placed inside the unit, on the laser cover shield:

CAUTION: VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN, AVOID EXPOSURE TO BEAM.

Notes: Manufactured under licence from Dolby Laboratories. The double-D symbol is trademarks of Dolby Laboratories, Inc. All rights reserved.

Service Hints

CAUTION

CHARGED CAPACITORS ON THE SERVO BOARD MAY DAMAGE THE DRIVE ELECTRONICS WHEN CONNECTING A NEW DRIVE.THAT'S WHY, BESIDES THE SAFETY MEASURES LIKE

- **SWITCH OFF POWER SUPPLY**
- **ESD PROTECTION**

ADDITIONAL ACTIONS MUST BE TAKEN BY THE REPAIR TECHNICIAN.

The following steps have to be done when replacing the defective loader :

1. Dismantling of the loader to access the ESD protection point if necessary.
2. **Solder the ESD protection point*.**
3. Disconnect flexfoil cable from the defective loader.
4. Put a paper clip on the flexfoil to short-circuit the contacts (fig.1)
5. Replace the defective loader with a new loader.
6. Remove paperclip from the flexfoil and connect it to the new loader.
7. Remove solder joint on the ESD protection point.

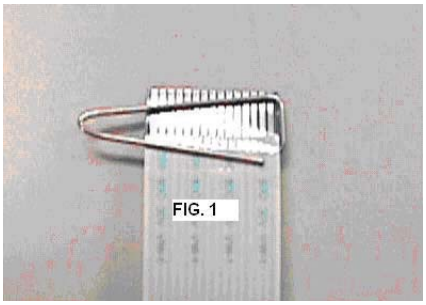
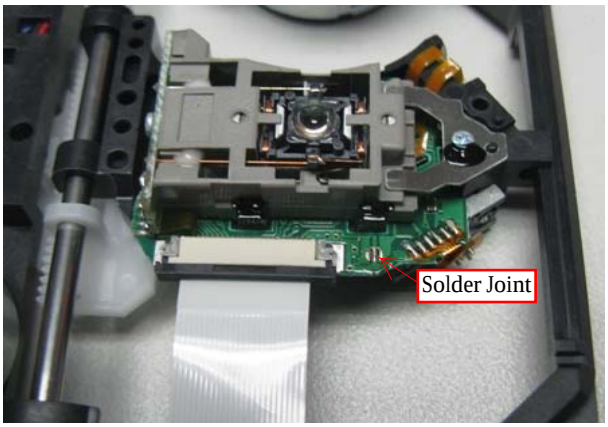


FIG. 1

ATTENTION: The laser diode of this loader is protected against ESD by a solder joint which shortcircuits the laserdiode to ground. For proper functionality of the loader this solder joint must be remove **after** connection loader to the set.



(ESD protection point is accessible from top of loader)

Only applicable for defective loader needed to be sent back to supplier for failure analysis and to support backcharging evidence.
This is also applicable for all partnership workshops.

Notes

Lead-Free requirement for service

INDENTIFICATION:

Regardless of special logo (not always indicated) Pb

One must treat all sets from 1.1.2005 onwards, according next rules.

Important note: In fact also products a little older can also be treated in this way as long as you avoid mixing solder-alloys (leaded/ lead-free). So best to always use SAC305 and the higher temperatures belong to this.

Due to lead-free technology some rules have to be respected by the workshop during a repair:

- Use only lead-free solder alloy Philips SAC305 with order code 0622 149 00106. If lead-free solder-paste is required, please contact the manufacturer of your solder-equipment. In general use of solder-paste within workshops should be avoided because paste is not easy to store and to handle.
- Use only adequate solder tools applicable for lead-free solder alloy. The solder tool must be able
  - To reach at least a solder-temperature of 400°C,
  - To stabilize the adjusted temperature at the solder-tip
  - To exchange solder-tips for different applications.
- Adjust your solder tool so that a temperature around 360°C – 380°C is reached and stabilized at the solder joint. Heating-time of the solder-joint should not exceed ~ 4 sec. Avoid temperatures above 400°C otherwise wear-out of tips will rise drastically and flux-fluid will be destroyed. To avoid wear-out of tips switch off un-used equipment, or reduce heat.
- Mix of lead-free solder alloy / parts with leaded solder alloy / parts is possible but PHILIPS recommends strongly to avoid mixed
  solder alloy types (leaded and lead-free). If one cannot avoid, clean carefully the
  solder-joint from old solder alloy and re-solder with new solder alloy (SAC305).
- Use only original spare-parts listed in the Service-Manuals. Not listed standard-material (commodities) has to be purchased at external companies.
- Special information for BGA-ICs:
  - always use the 12nc-recognizable soldering temperature profile of the specific BGA (for de-soldering always use highest lead-free temperature profile, in case of doubt)
  - lead free BGA-ICs will be delivered in so-called 'dry-packaging' (sealed pack including a silica gel pack) to protect the IC against moisture. After opening, dependent of MSL-level seen on indicator-label in the bag, the BGA-IC possibly still has to be baked dry. This will be communicated via AYS-website.
  Do not re-use BGAs at all.
- For sets produced before 1.1.2005, containing leaded soldering-tin and components, all needed spare-parts will be available till the end of the service-period. For repair of such sets nothing changes.
- On our website:
  www.atyourservice.ce.Philips.com

You find more information to:

BGA-de-/soldering (+ baking instructions)
Heating-profiles of BGAs and other ICs used in Philips-sets

You will find this and more technical information within the "magazine", chapter "workshop news".

For additional questions please contact your local repair-helpdesk.

EN Before using your product, read all accompanying safety information

DA Læs alle medfølgende sikkerhedsoplysninger, inden du tager produktet i brug

DE Lesen Sie vor Verwendung dieses Produkts alle begleitenden Sicherheitsinformationen

EL Πριν χρησιμοποιήσετε το προϊόν, διαβάστε όλες τις παρεχόμενες πληροφορίες ασφάλειας

ES Antes de usar el producto, lea toda la información de seguridad adjunta

FI Lue kaikki turvallisuustiedot ennen tuotteen käyttöä

FR Avant d'utiliser votre produit, lisez l'intégralité des consignes de sécurité jointes

IT Prima di utilizzare il prodotto, leggere tutte le relative informazioni sulla sicurezza

NL Lees voordat u het product gaat gebruiken eerst alle bijbehorende veiligheidsinformatie

NO Les all vedlagt sikkerhetsinformasjon før du bruker produktet

PT Antes de utilizar o produto, leia todas as informações de segurança que o acompanham

SV Innan du använder produkten ska du läsa all tillhörande säkerhetsinformation

TR Ürününüzü kullanmadan önce ilgili tüm güvenlik bilgilerini okuyun

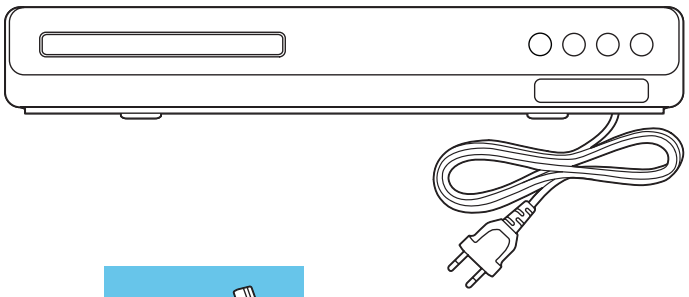
CS Před použitím produktu si přečtěte doprovodné bezpečnostní informace

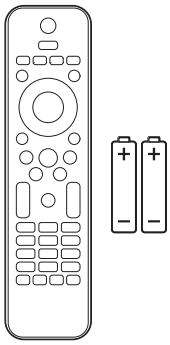
HU A termék használata előtt alaposan olvassa el a mellékelt biztonsági tudnivalókat

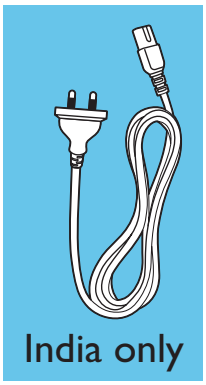
PL Przed rozpoczęciem korzystania z produktu należy zapoznać się z informacjami dotyczącymi bezpieczeństwa

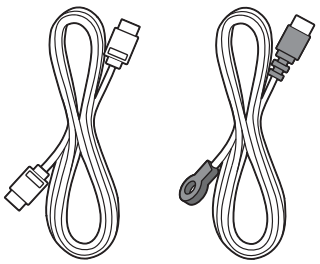
RO Înainte de a utiliza acest produs, citiţi toate informaţiile de siguranţă care îl însoţesc

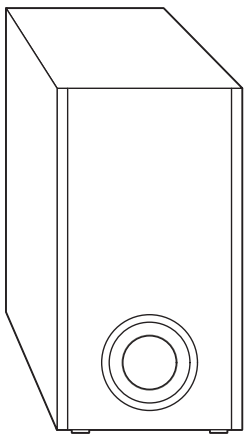
SK Pred použitím produktu si prečítajte všetky sprievodné bezpečnostné informácie

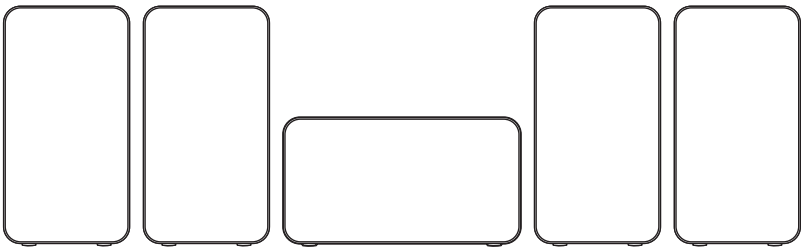






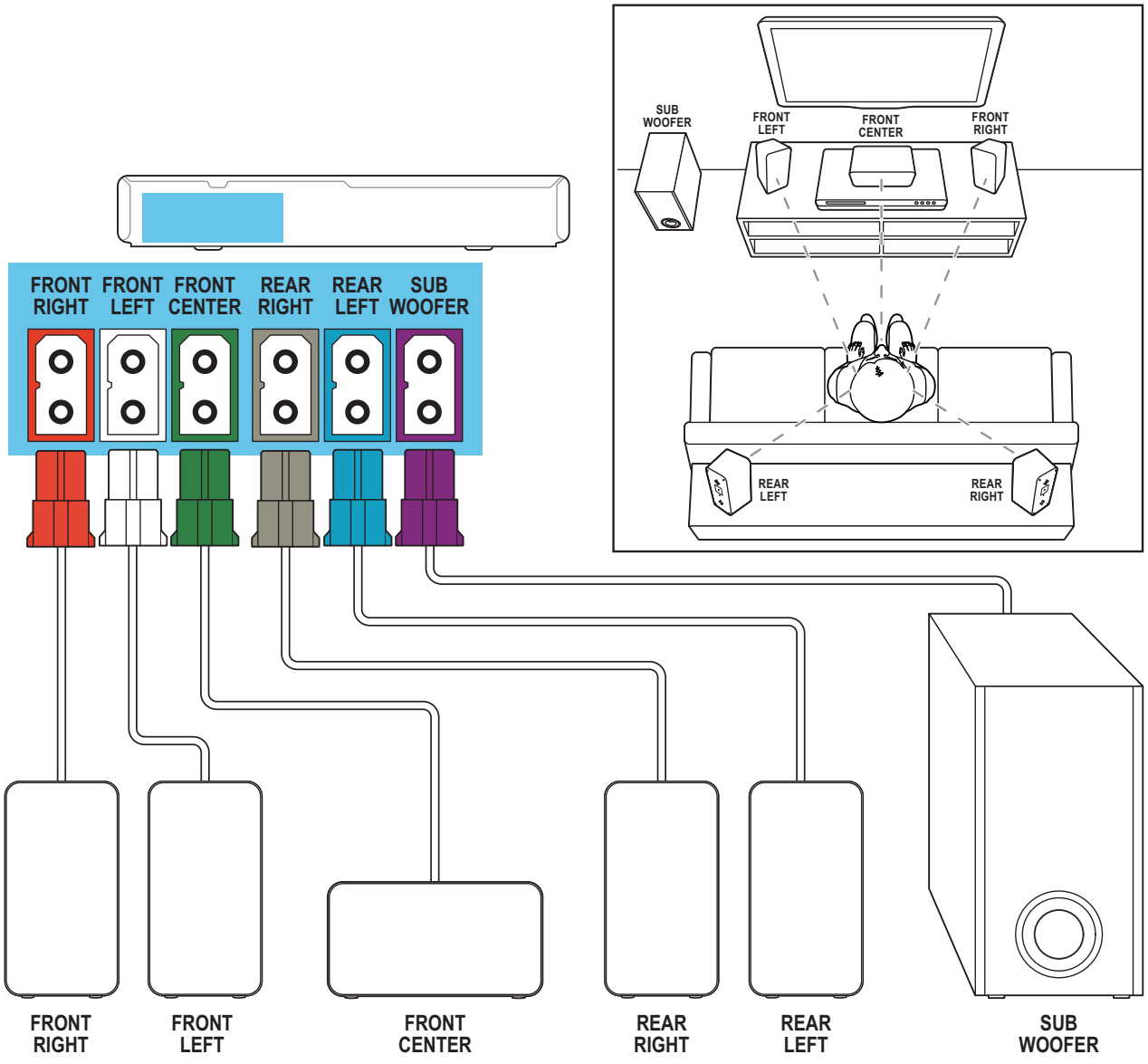


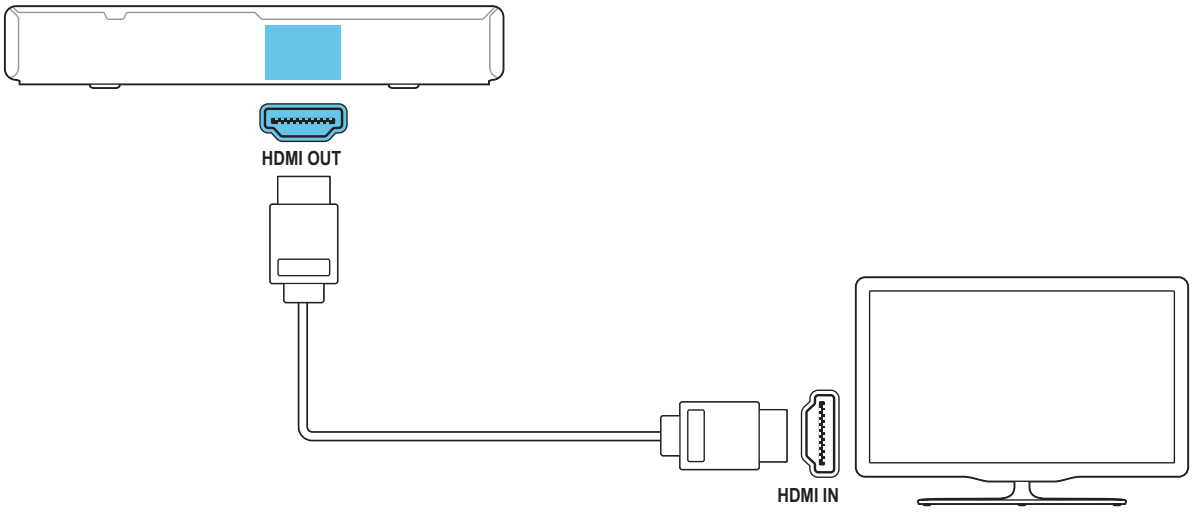


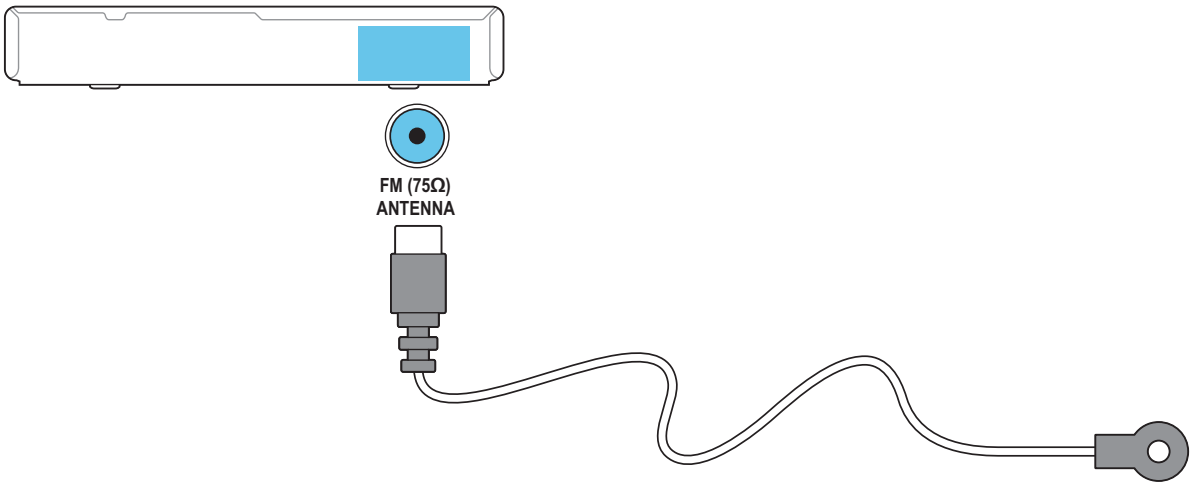


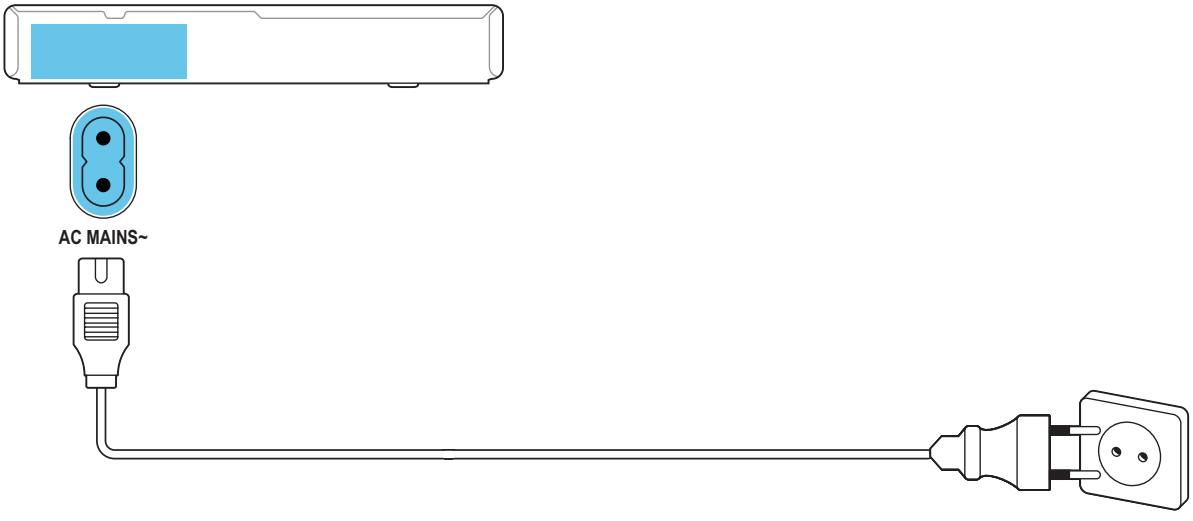
1

EN Connect the home theater
HI होम थिएटर को कनेक्ट करें
RU Подключите домашний кинотеатр
UK Під'єднання системи домашнього кінотеатру




HDMI OUT
HDMI IN

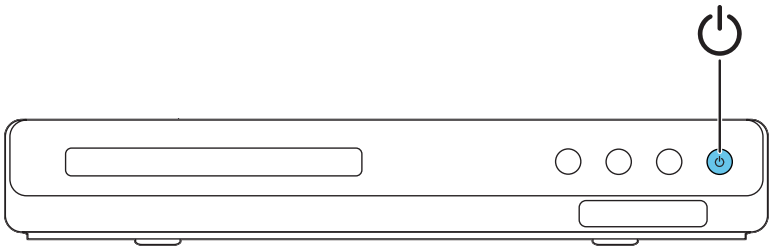

FM (75Ω)
ANTENNA


AC MAINS~

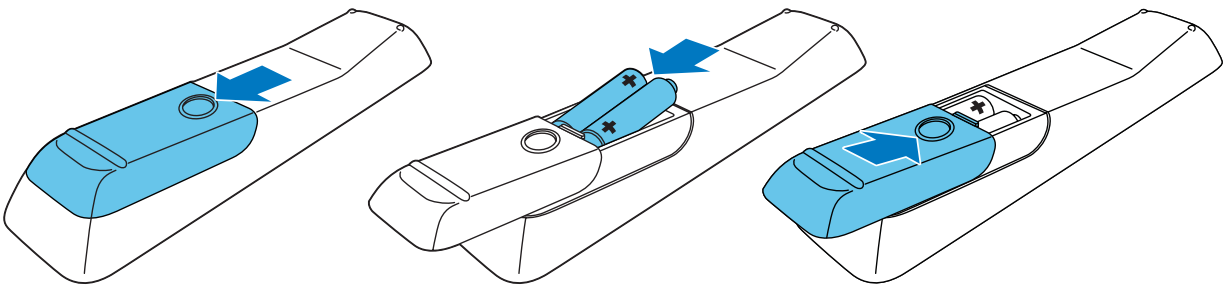
2

EN Switch on the home theater
HI होम थिएटर को स्विच ऑन करें
RU Включите домашний кинотеатр
UK Увімкнення системи домашнього кінотеатру

1

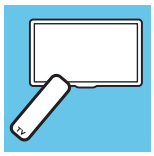


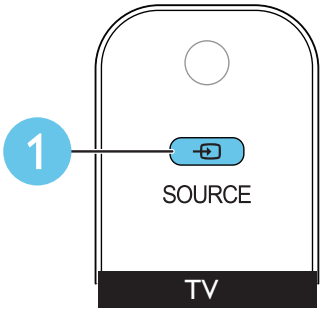
2

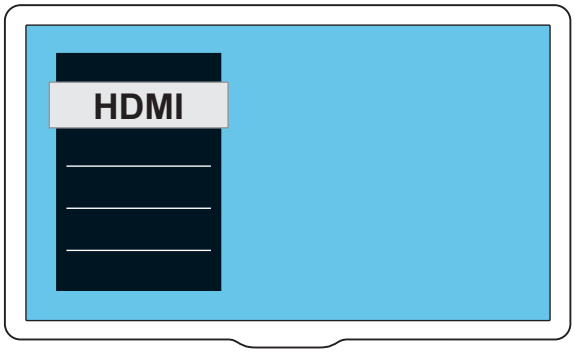


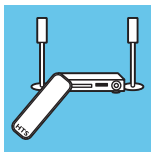
3

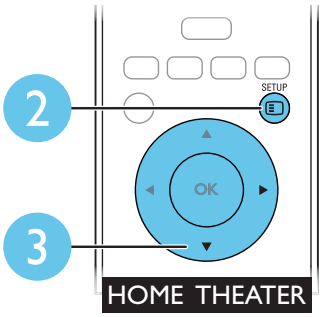
EN Complete the first time setup
HI पहली बार के सेटअप को पूरण करें
RU Выполните первоначальную настройку
UK Виконання перших налаштувань

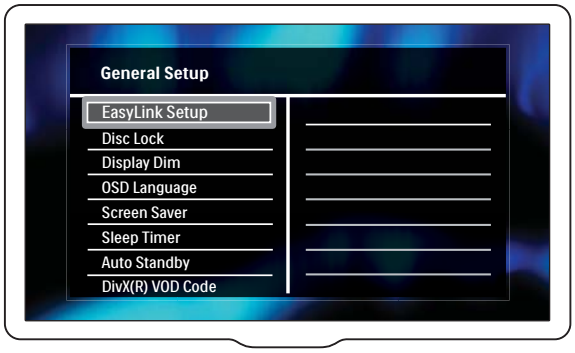


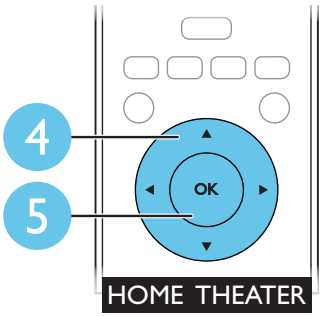


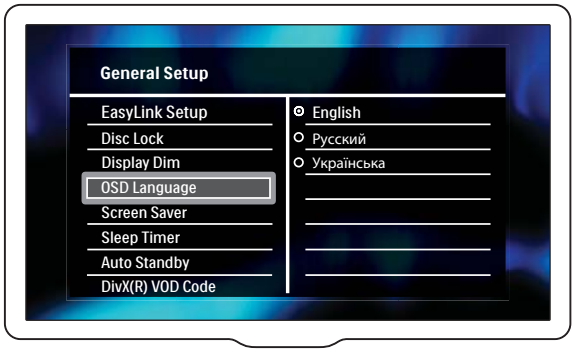






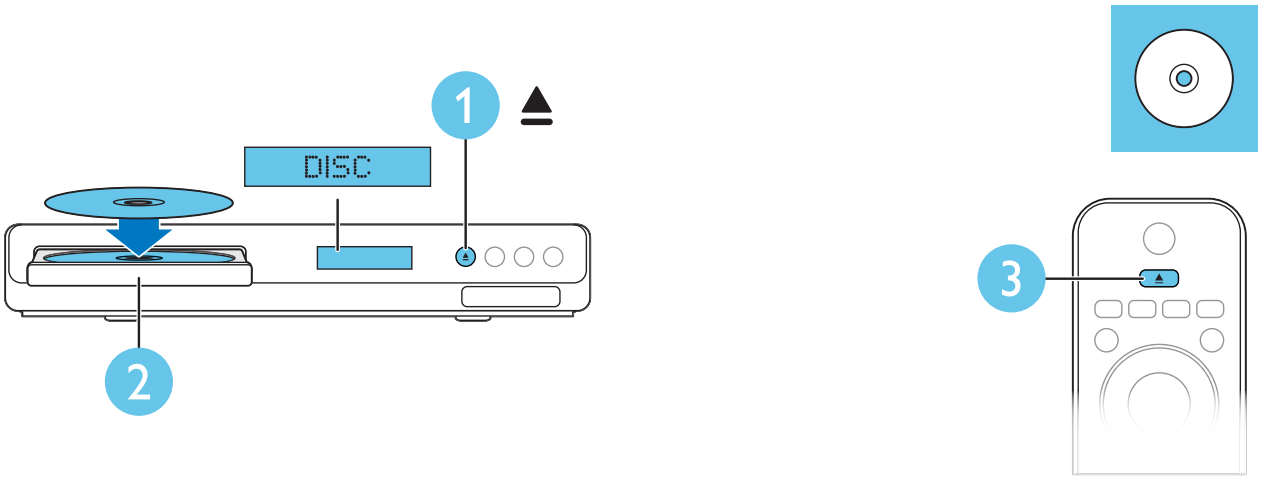


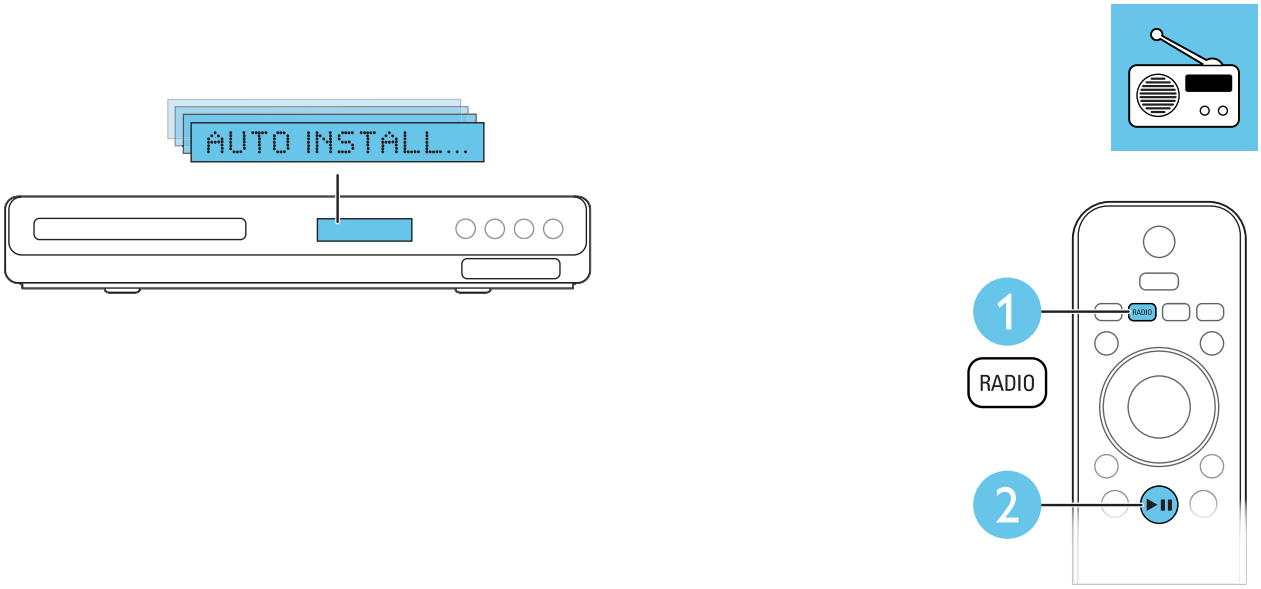


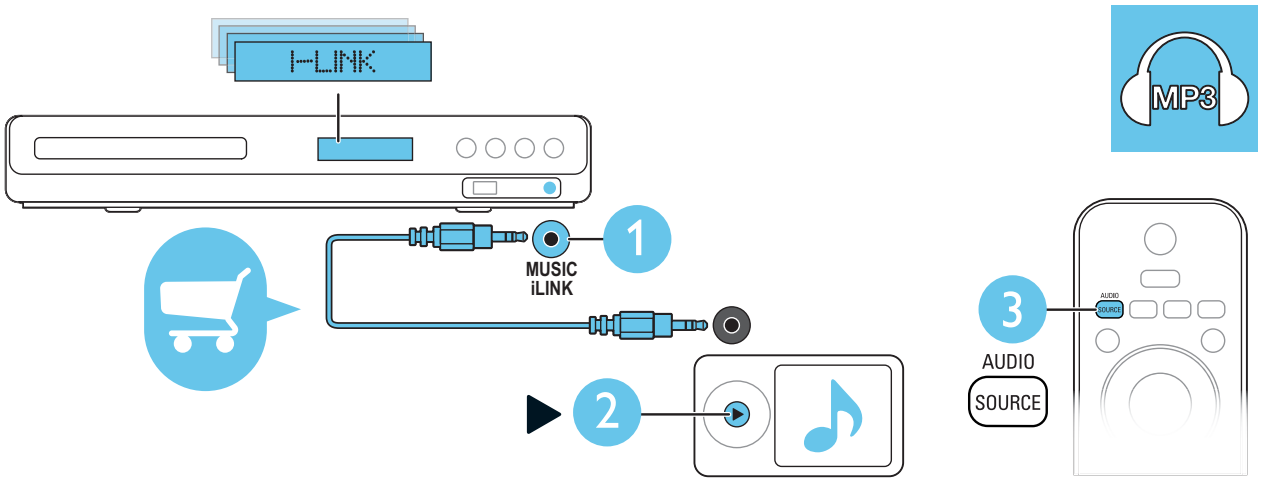


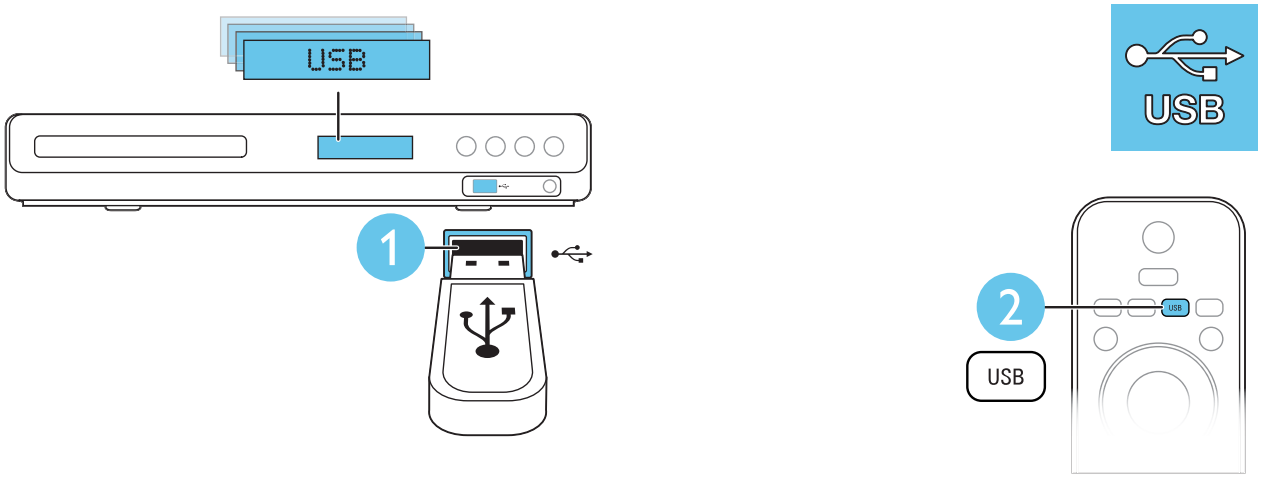
4

EN Use your home theater
HI अपने होम थिएटर का उपयोग करें
RU Домашний кинотеатр готов к использованию
UK Використання системи домашнього кінотеатру





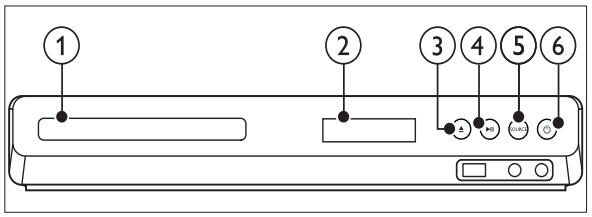

I-LINK
MUSIC
iLINK
1
2
MP3
3
AUDIO
SOURCE


USB
1
USB
2
USB

Your home theater

Congratulations on your purchase, and welcome to Philips! To fully benefit from the support that Philips offers, register your home theater at www.philips.com/welcome.

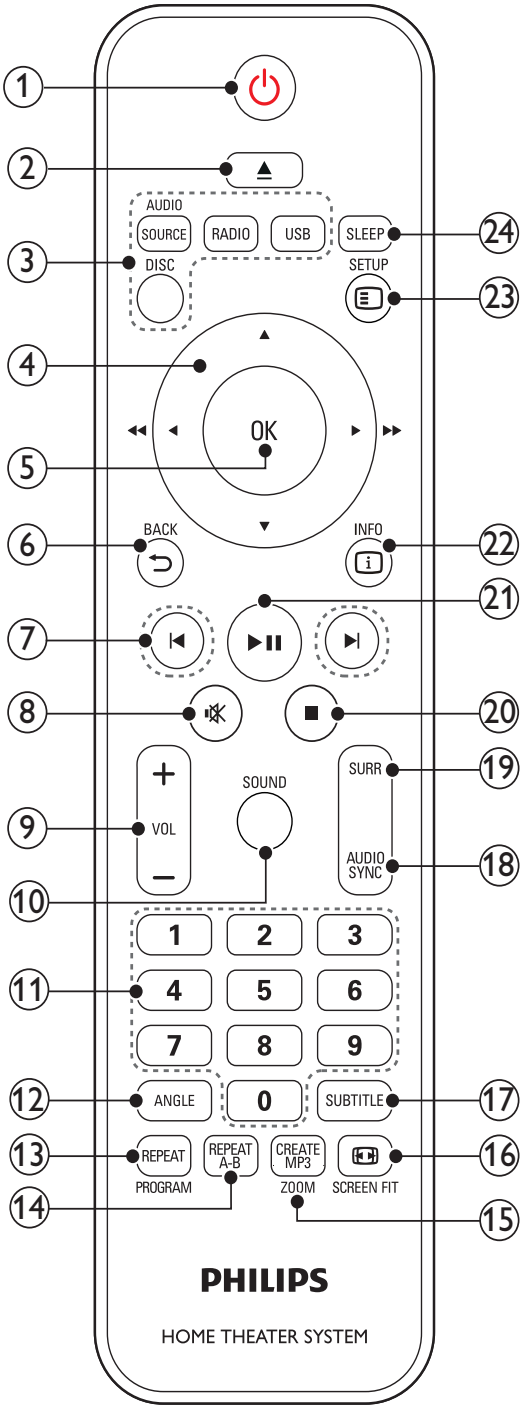
Main unit



1. Disc compartment
2. Display panel
3. ▲ (Open/Close)
   Open or close the disc compartment, or eject the disc.
4. ▶II (Play/Pause)
   Start, pause or resume play.
5. SOURCE
   Select an audio or video source for the home theater.
6. ⏻ (Standby-On)
   Switch the home theater on or to standby.

Remote control

This section includes an overview of the remote control.



① ⏻ (Standby-On)
- Switch the home theater on or to standby.
- When EasyLink is enabled, press and hold for at least three seconds to switch all connected HDMI CEC compliant devices to standby.

② ⏏ (Open/Close)
Open or close the disc compartment, or eject the disc.

③ Source buttons
- **DISC**: Switch to disc source.Access or exit the disc menu when you play a disc.
- **AUDIO SOURCE**: Select an audio input source.
- **RADIO**: Switch to FM radio.
- **USB**: Switch to USB storage device.

④ Navigation buttons
- Navigate menus.
- In video mode, press left or right to fast backward or fast forward; press up or down to slow backward or slow forward.
- In radio mode, press left or right to search a radio station; press up or down to fine tune a radio frequency.

⑤ OK
Confirm an entry or selection.

⑥ ⮌ BACK
Return to a previous menu screen.

⑦ ⏮ / ⏭ (Previous/Next)
- Skip to the previous or next track, chapter or file.
- In radio mode, select a preset radio station.

⑧ 🔇 (Mute)
Mute or restore volume.

⑨ VOL +/-
Increase or decrease volume.

⑩ SOUND
Select a sound mode.

⑪ Numeric buttons
Select an item to play.

⑫ ANGLE
Select video scenes recorded in different camera angels.

⑬ REPEAT / PROGRAM
- Select or turn off repeat mode.
- In radio mode, set a radio station.

⑭ REPEAT A-B
Mark two points within a chapter or track to repeat play, or turn off the repeat mode.

⑮ CREATE MP3/ZOOM
- Access the create MP3 menu.
- Zoom into a video scene or picture. Press the **Navigation buttons** (left/right) to select a zoom factor.

⑯ SCREEN FIT
Fit the picture format to the TV screen.

⑰ SUBTITLE
Select subtitle language for video.

⑱ AUDIO SYNC
- Select an audio language or channel.
- Press and hold to access audio delay setting, then press **+/-** to delay the audio to match the video.

⑲ SURR
Select surround sound or stereo sound.

⑳ ■ (Stop)
Stop play.

㉑ ▶❚❚ (Play/Pause)
Start, pause or resume play.

㉒ INFO
Access more play options while playing a disc or a USB storage device.

㉓ SETUP
Access or exit the setup menu.

㉔ SLEEP
Switch the home theater to standby after a specified time.

Mechanical and Dismantling Instructions

Dismantling Instruction

Detailed information please refer to the model set.

The following guidelines show how to dismantle the player.

Step1: Remove 6 screws around the Top Cover, and then remove the Top Cover (Figure 1).

Sample Model:HTS3531/12

Figure 1

Step2: If it is necessary to dismantle Loader or Front Panel, the Front door should be removed first. (Figure 2)

Method A):Turn on the power button,then press open button to dismantle front door.Please kindly note that power off as soon as front door is out of machine.

Method B): If the tray can't open in normal way, you can make it through the instruction as below, an emergency exit at bottom cover of the machine.

Note: Make sure to operate gently otherwise the guider would be damaged.

Method A)

Please kindly note that dismantle the front door assembly carefully to avoid damage tray and the front door.

Method B)

Figure 2

Mechanical and Dismantling Instructions

Dismantling Instruction Detailed information please refer to the model set.

Step3 :Dismantle Front Panel, disconnect the connectors (XP4, XP8,XP12), need release 2 snaps of Front Panel & 2 snaps of bottom cabinet , then gently pull the Panel out from the set. (Figure 3)

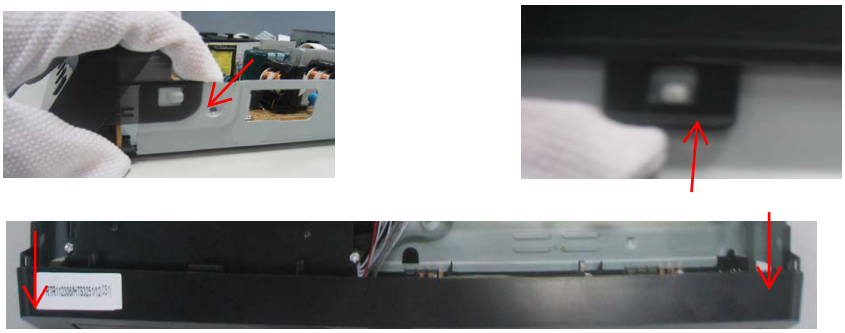


Figure 3

Step4 : Dismantle Front Control Board,remove 5 screws (Figure 4 /5)

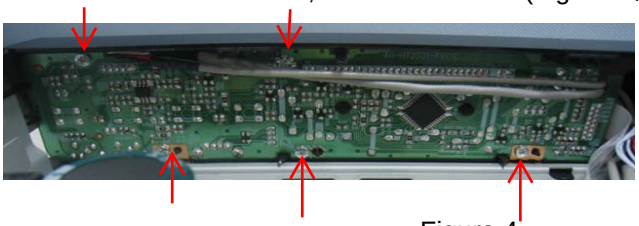


Figure 4

Step5: Dismantle Loader, disconnect the 3 connectors (XP2, XP3, XP6) aiming in the below figure, and remove 2 screws that connects the loader and the bottom cabinet. (Figure 5)

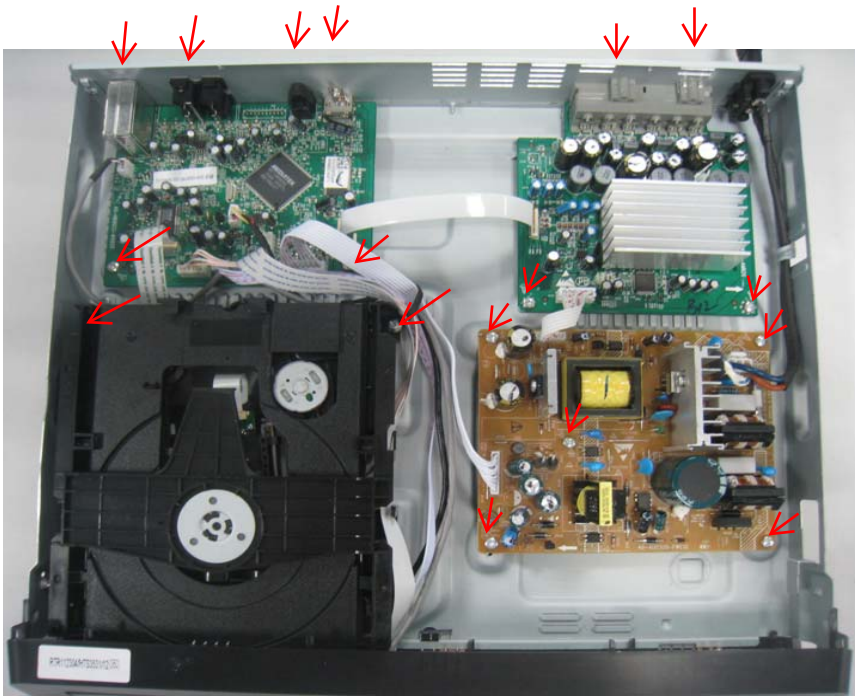


Figure 5

Mechanical and Dismantling Instructions

Dismantling Instruction Detailed information please refer to the model set.

Step6: Dismantle Main Board, first disconnect 2 connectors (XP1, XP11), and then remove 6 screws. (Figure 5/6)
Step7: Dismantle Power Board, disconnect the connectors XS703 and CN501 on Power Board,then remove 5 screws.(Figure 5/6)
Step8: Dismantle Amplifier Board, remove 4 screws (Figure 5/6)

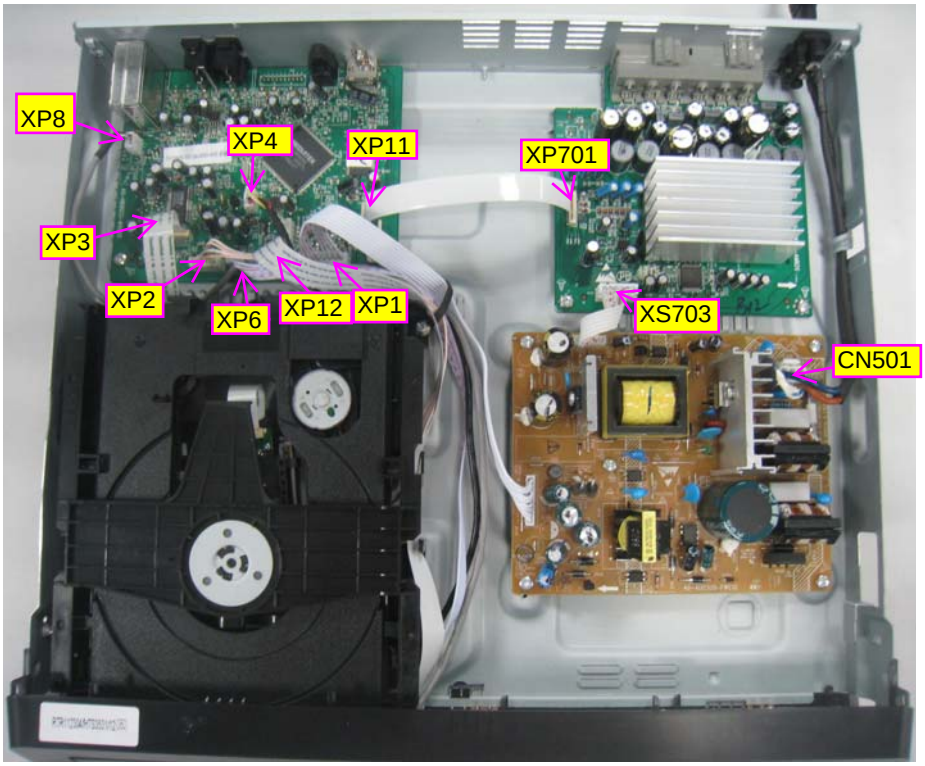


Figure 6

Software Upgrade

1. There are 2 ways to software upgrade:

First :

Upgrade from USB:

Coppy the upgrade file HTS3531_XX.BIN to USB then press the USB key on RC or SOURCE key on front panel.

When upgrade file detected, select "Yes" to upgrade, select "No" to cancel.

After upgrading begins, a message “DO NOT POWER OFF” will show,or the product will hang up and upgrading failed.

After you cancel,the product would not read the USB unless upgrade file deleted.

Second:

Upgrade from Disc:

Coppy the upgrade file HTS3531_XX.BIN to disc then read the disc.

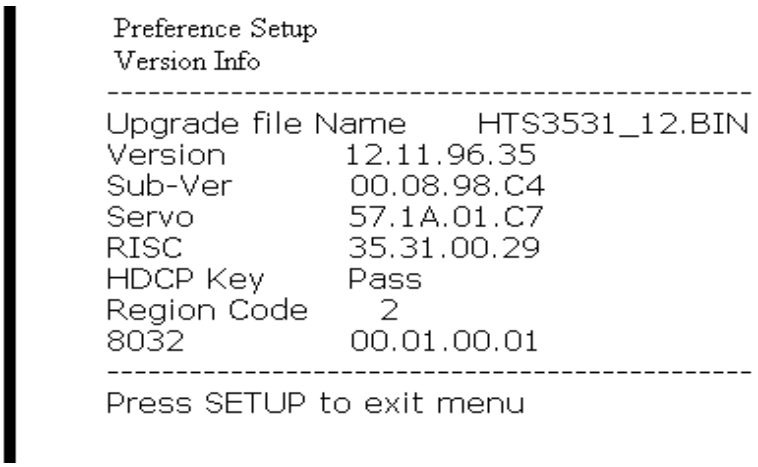
When upgrade file detected, select "Yes" to upgrade, select "No" to cancel.

After upgrading begins, a message “DO NOT POWER OFF” will show,or the product will hang up and upgrading failed.

After you cancel,the product would not read Disc unless upgrade file deleted.

2. Check the version information after upgraded.

Press the setup key on RC ,slect Preference Setup,and then Version info ,press OK Key you will see a interface below:



How to adjust the setting after repairing:

1.HTS3531/12: Open DVD tray, press “9” “9” “9” “9” “2” on R/C;

2.HTS3531/51: Open DVD tray, press “9” “9” “9” “9” “5” on R/C;

3.HTS3531/94: Open DVD tray, press “9” “9” “9” “9” “5” on R/C;

4.HTS3531/55: Open DVD tray, press “9” “9” “9” “9” “4” on R/C;

5.HTS3531/98: Open DVD tray, press “9” “9” “9” “9” “3” on R/C;

6.HTS3531/F7: Open DVD tray, press “9” “9” “9” “9” “1” on R/C;

7.HTS3531/78: Open DVD tray, press “9” “9” “9” “9” “4” on R/C;

8.HTS3531/93: Open DVD tray, press “9” “9” “9” “9” “6” on R/C;

Note: Restart after above steps.

Change settings

This section helps you to change the settings of your home theater.

Caution

- Most of the settings are already configured with the best value for your home theater. Unless you have a reason to change a setting, it is best to leave it at the default value.

Note

- You cannot change a setting that is grayed out.
- To return to the previous menu, press ⮌ - 返回. To exit the menu, press ⊟ - 设定.

Picture

Change the picture settings to suit your preferences.

Note

- The best setting is automatically selected for the TV. If you change the setting, make sure that the TV supports the new settings.

Picture settings and format

1 Press ⊟ - 设定.
2 Select **[Video Setup]**, and then press **OK**.
3 Change the following settings, and then press **OK**:
   - **[TV System]**: For TV supported video format.
   - **[TV Display]**: For TV picture display format.
   - **[Picture Settings]**: Predefined color settings.

Picture resolution

To enjoy high definition HDMI video output, set the HDMI video settings that best match up with your TV capability.

1 Press ⊟ - 设定.
2 Select **[Video Setup]**, and then press **OK**.
3 Select **[HDMI Setup]**, and then press **OK**.
4 Change the following settings, and then press **OK**:
   - **[Wide Screen Format]**: For 16:9 wide screen TV display setting.
   - **[HDMI Video]**: HDMI resolution.

High definition picture

Support high definition JPEG pictures.

1 Press ⊟ - 设定.
2 Select **[Video Setup]**, and then press **OK**.
3 Select **[HD JPEG]** > **[On]**, and then press **OK**.

Sound

Change the sound settings to suit your preference.

HDMI audio

HDMI audio is automatically down-mixed to two channel for TV speakers. If you do not want to output audio through your TV, disable the HDMI audio.

1 Press ⊟ - 设定.
2 Select **[Audio Setup]**, and then press **OK**.
3 Select **[HDMI Audio]** > **[Off]**, and then press **OK**.

Language

Select a language for the home menu, audio, and subtitles.

Home menu

1 Press ⊟ - 设定.
2 Select **[General Setup]**, and then press **OK**.
3 Select **[OSD Language]**, and then press **OK**.
4 Select a menu language for your home theater, and then press **OK**.

Disc audio

1 Press ⊟ - 设定.
2 Select **[Preference Setup]**, and then press **OK**.
3 Select **[Audio]**, and then press **OK**.
4 Select an audio language for discs, and then press **OK**.

Note

- If your preferred disc language is not available, select **[Others]** from the list, and enter the 4-digit language code found at the end of this user manual.
- If you select a language that is not available on a disc, the home theater uses the default language of the disc.

Disc subtitle

1 Press ⊟ - 设定.
2 Select **[Preference Setup]**, and then press **OK**.
3 Select **[Subtitle]**, and then press **OK**.
4 Select a subtitle language for discs, and then press **OK**.

Disc menu

1 Press ⊟ - 设定.
2 Select **[Preference Setup]**, and then press **OK**.
3 Select **[Disc Menu]**, and then press **OK**.
4 Select a menu language for discs, and then press **OK**.

Note

- If your preferred disc language is not available, select **[Others]** from the list, and enter the 4-digit language code found at the end of this user manual.
- If you select a language that is not available on a disc, the home theater uses the default language of the disc.

Parental control

Restrict access to discs.

Password

You can set or change your password to play a restricted disc.

1 Press ⊟ - 设定.
2 Select **[Preference Setup]**, and then press **OK**.
3 Select **[Password]**, and then press **OK**.
↳ A change password menu is displayed.
4 Follow the instructions on the TV to set or change password.
- If you do not have a password or you have forgotten, enter **0000**.

5 Press **OK**.

Ratings

Some discs are recorded with ratings according to age. You can set up your home theater to play only discs with an age rating lower than your child's age.

1 Press ⊟ - 设定.
2 Select **[Preference Setup]**, and then press **OK**.
3 Select **[Parental]**, and then press **OK**.
↳ A message prompts you to enter the password.

4 Enter the password with the **Numeric buttons**.

5 Select an age rating, and then press **OK**.
- To play all discs irrespective of the rating, select level **8** or **[Off]**.

Lock disc

To restrict access to discs that are not encoded with ratings and parental control, lock the disc manually. You can lock upto 20 discs on your home theater.

1 While playing a disc, press ⊟ - 设定.

2 Select **[General Setup]**, and then press **OK**.

3 Select **[Disc Lock]** > **[Lock]**, and then press **OK**.
↳ A message prompts you to enter the password.

4 Enter the password with the **Numeric buttons**.
↳ The disc is locked.
- To play the locked disc, enter the password.

Energy saving

Save energy by changing the following settings.

Auto standby

When playing a disc or a USB storage device, automatically switch your home theater to standby if:
- it is in pause or stop mode, and
- no button is pressed for 30 minutes.

1 Press ⊟ - 设定.

2 Select **[General Setup]**, and then press **OK**.

3 Select **[Auto Standby]** > **[On]**, and then press **OK**.

Sleep timer

Set timers to switch the home theater to standby after a specified time.

1 Press ⊟ - 设定.

2 Select **[General Setup]**, and then press **OK**.

3 Select **[Sleep Timer]**, and then press **OK**.

4 Select the duration of the sleep timer.
↳ The sleep timer can be set up to 60 minutes. If the sleep timer is set to **[Off]**, it switches off.

5 Press **OK** to activate.
↳ The home theater switches to standby after the specified time.

Screen saver

Automatically switch your home theater to screen saver mode if:
- it is in pause or stop mode, and
- no button is pressed for 10 minutes.

1 Press ⊟ - 设定.

2 Select **[General Setup]**, and then press **OK**.

3 Select **[Screen Saver]** > **[On]**, and then press **OK**.

Display panel

Change the brightness of the home theater display panel.

1 Press ⊟ - 设定.

2 Select **[General Setup]**, and then press **OK**.

3 Select **[Display Dim]**, and then press **OK**.

4 Select the brightness, and then press **OK**.

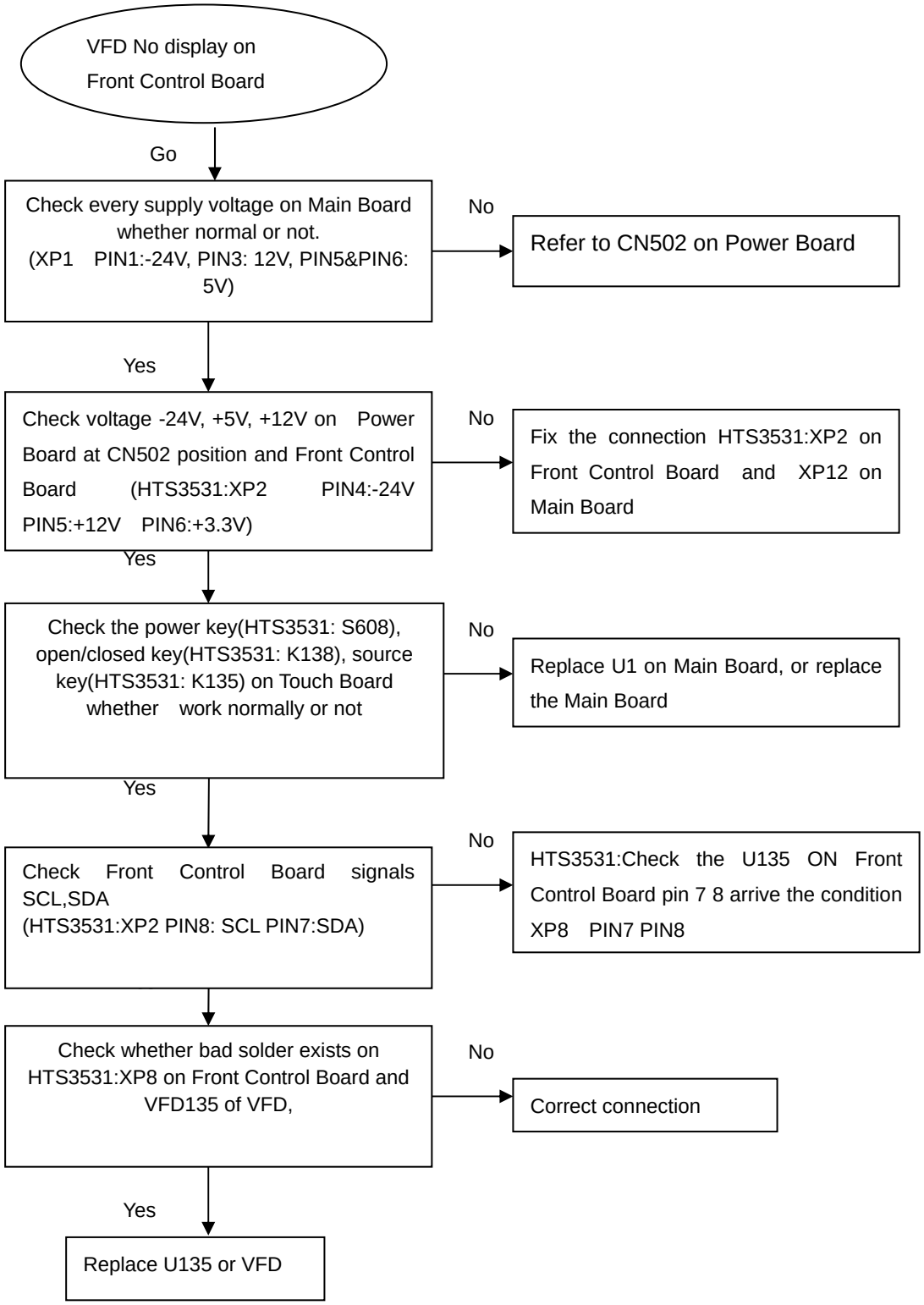
Apply factory settings

Reset your home theater to the default settings. You cannot reset the parental control settings.

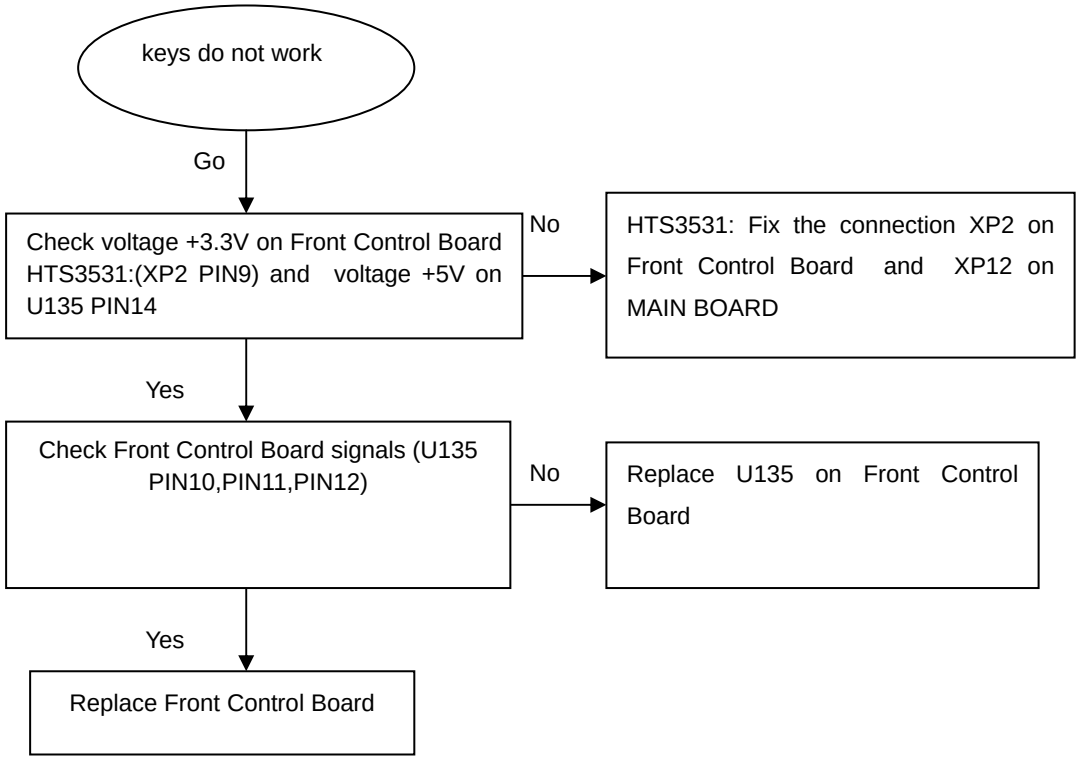
4-5

1 Press ⊟ - 设定.
2 Select **[Preference Setup]**, and then press **OK**.
3 Select **[Default]**, and then press **OK**.
4 Select **[Ok]**, and then press **OK**.

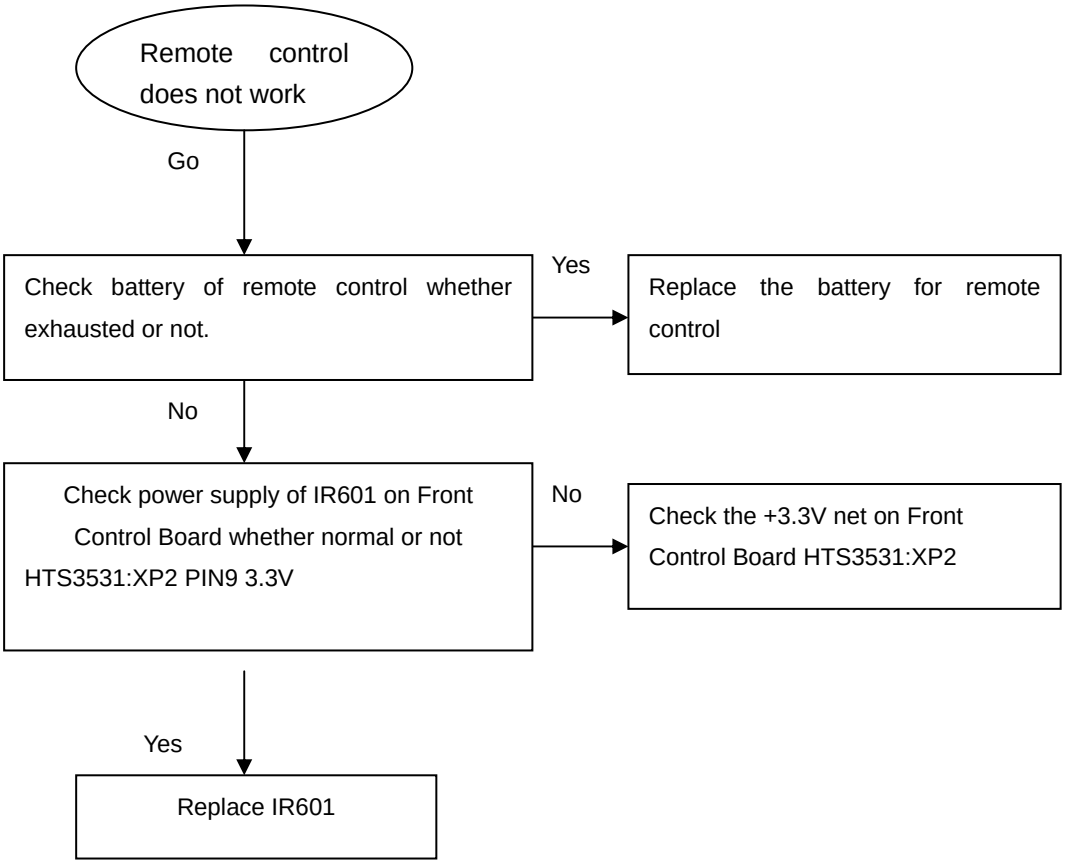
VFD No display on Front Control Board


VFD No display on Front Control Board
Go
Check every supply voltage on Main Board whether normal or not. (XP1 PIN1:-24V, PIN3: 12V, PIN5&PIN6: 5V)
No
Refer to CN502 on Power Board
Yes
Check voltage -24V, +5V, +12V on Power Board at CN502 position and Front Control Board (HTS3531:XP2 PIN4:-24V PIN5:+12V PIN6:+3.3V)
No
Fix the connection HTS3531:XP2 on Front Control Board and XP12 on Main Board
Yes
Check the power key(HTS3531: S608), open/closed key(HTS3531: K138), source key(HTS3531: K135) on Touch Board whether work normally or not
No
Replace U1 on Main Board, or replace the Main Board
Yes
Check Front Control Board signals SCL,SDA (HTS3531:XP2 PIN8: SCL PIN7:SDA)
No
HTS3531:Check the U135 ON Front Control Board pin 7 8 arrive the condition XP8 PIN7 PIN8
Check whether bad solder exists on HTS3531:XP8 on Front Control Board and VFD135 of VFD,
No
Correct connection
Yes
Replace U135 or VFD

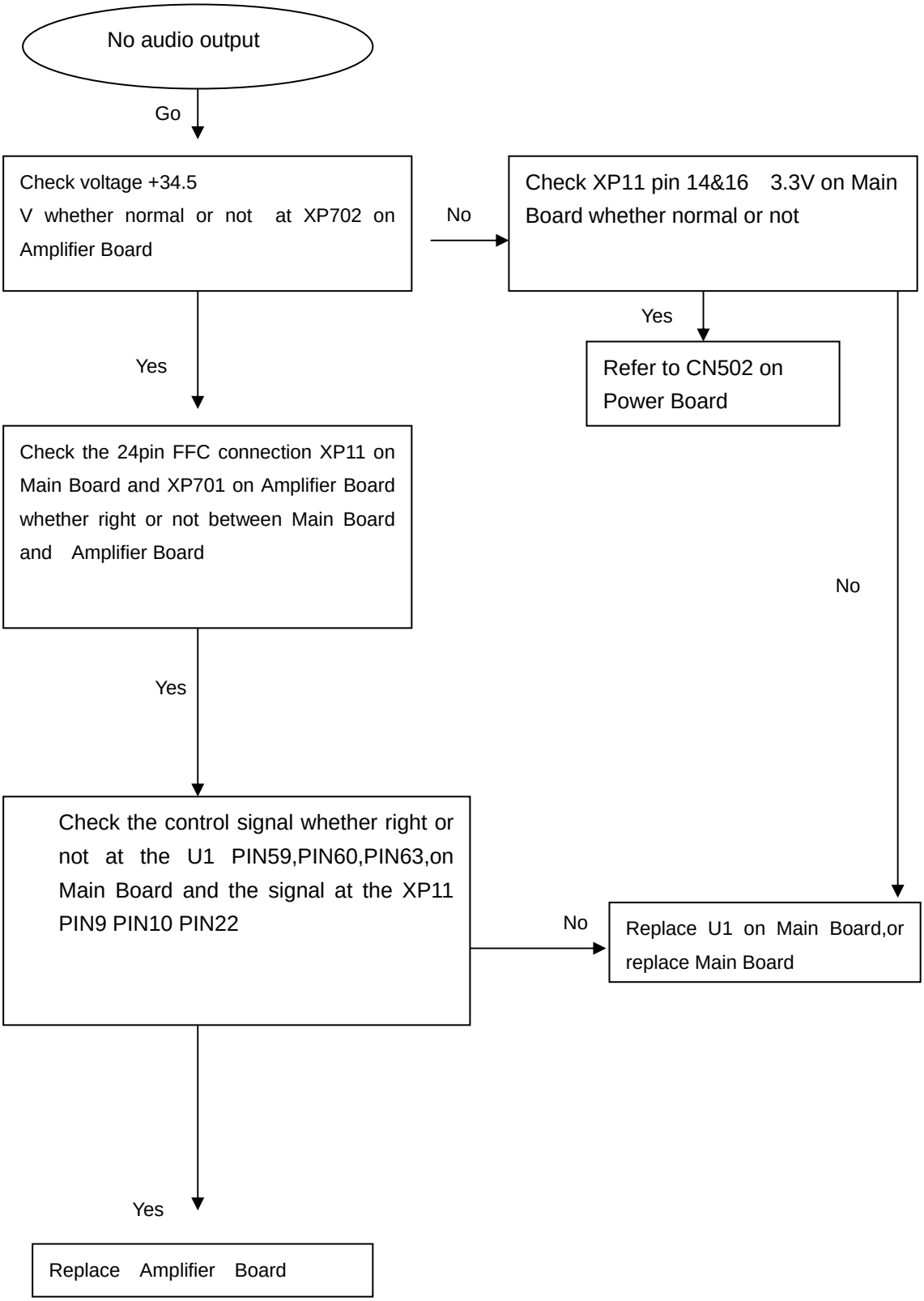
keys do not work


keys do not work
Go
Check voltage +3.3V on Front Control Board HTS3531:(XP2 PIN9) and voltage +5V on U135 PIN14
No
HTS3531: Fix the connection XP2 on Front Control Board and XP12 on MAIN BOARD
Yes
Check Front Control Board signals (U135 PIN10,PIN11,PIN12)
No
Replace U135 on Front Control Board
Yes
Replace Front Control Board

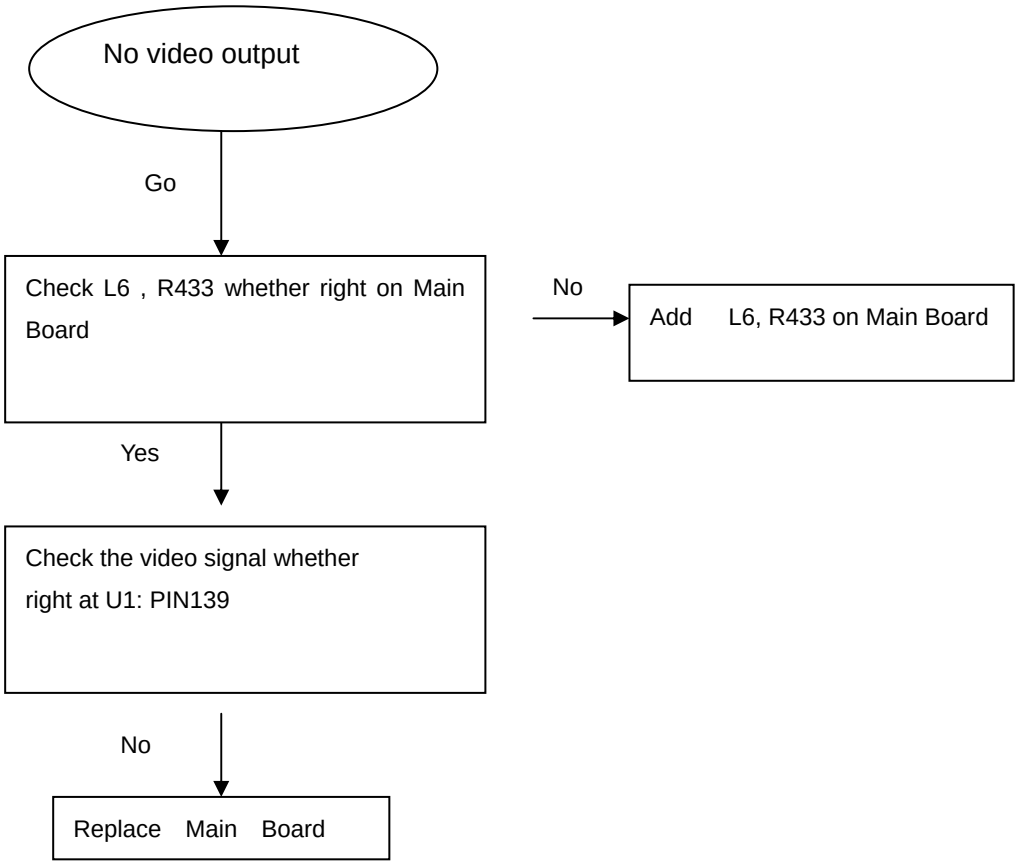
Remote control does not work


Remote control does not work
Go
Check battery of remote control whether exhausted or not.
Yes
Replace the battery for remote control
No
Check power supply of IR601 on Front Control Board whether normal or not HTS3531:XP2 PIN9 3.3V
No
Check the +3.3V net on Front Control Board HTS3531:XP2
Yes
Replace IR601

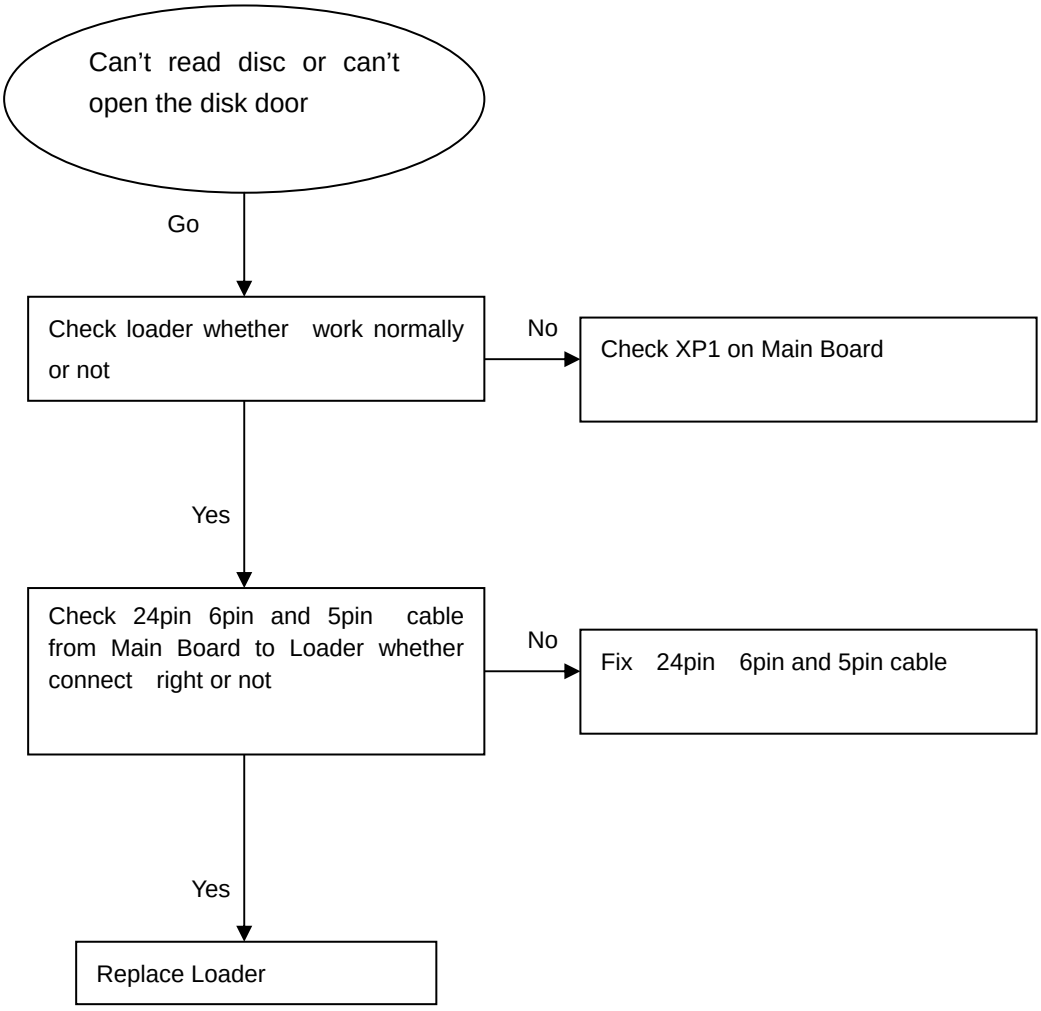
No audio output


No audio output
Go
Check voltage +34.5 V whether normal or not at XP702 on Amplifier Board
No
Check XP11 pin 14&16 3.3V on Main Board whether normal or not
Yes
Refer to CN502 on Power Board
Yes
Check the 24pin FFC connection XP11 on Main Board and XP701 on Amplifier Board whether right or not between Main Board and Amplifier Board
No
Yes
Check the control signal whether right or not at the U1 PIN59,PIN60,PIN63,on Main Board and the signal at the XP11 PIN9 PIN10 PIN22
No
Replace U1 on Main Board,or replace Main Board
Yes
Replace Amplifier Board

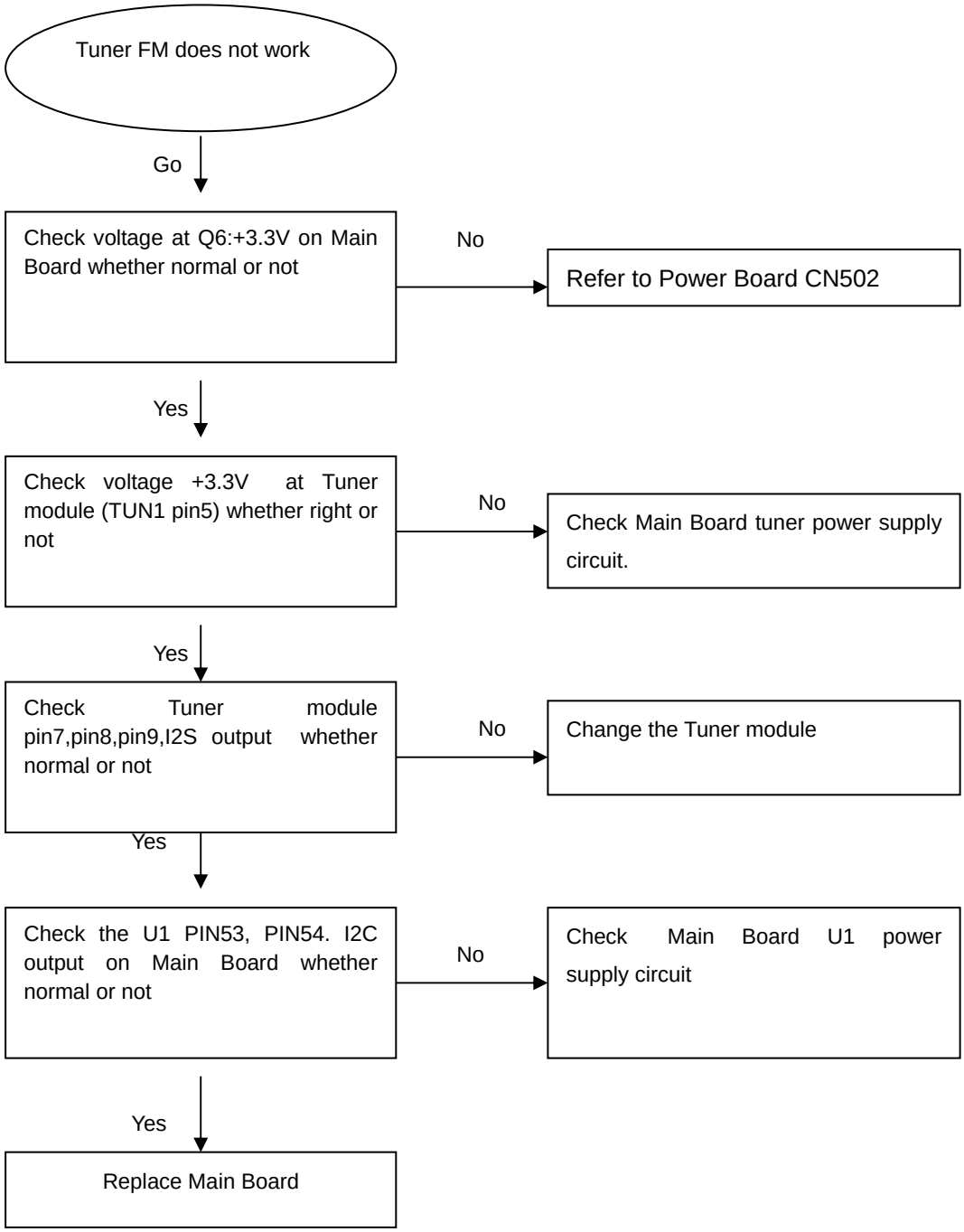
No video output



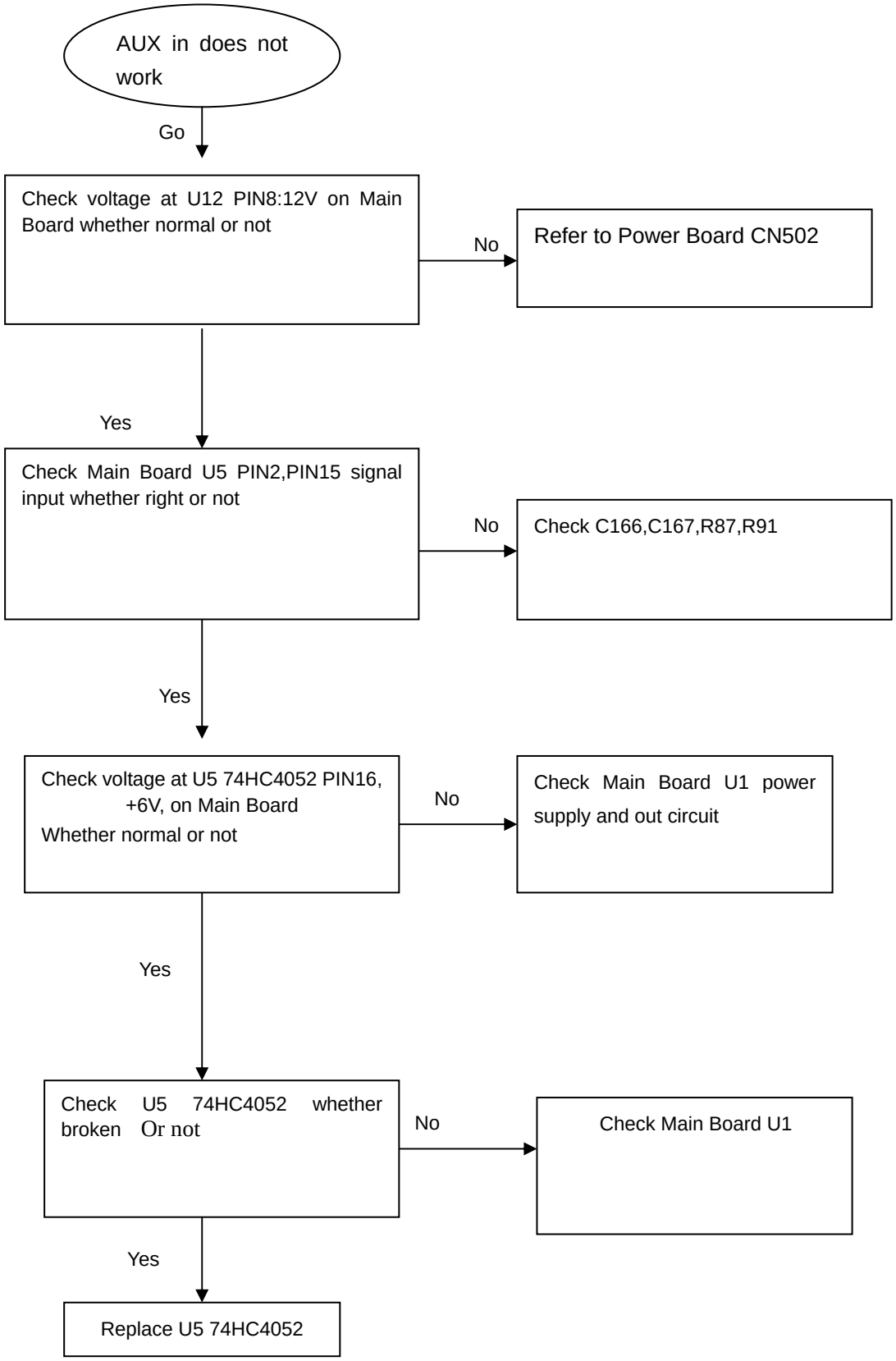
Can’t read disc or can’t open the disk door


Can’t read disc or can’t open the disk door
Go
Check loader whether work normally or not
No
Check XP1 on Main Board
Yes
Check 24pin 6pin and 5pin cable from Main Board to Loader whether connect right or not
No
Fix 24pin 6pin and 5pin cable
Yes
Replace Loader

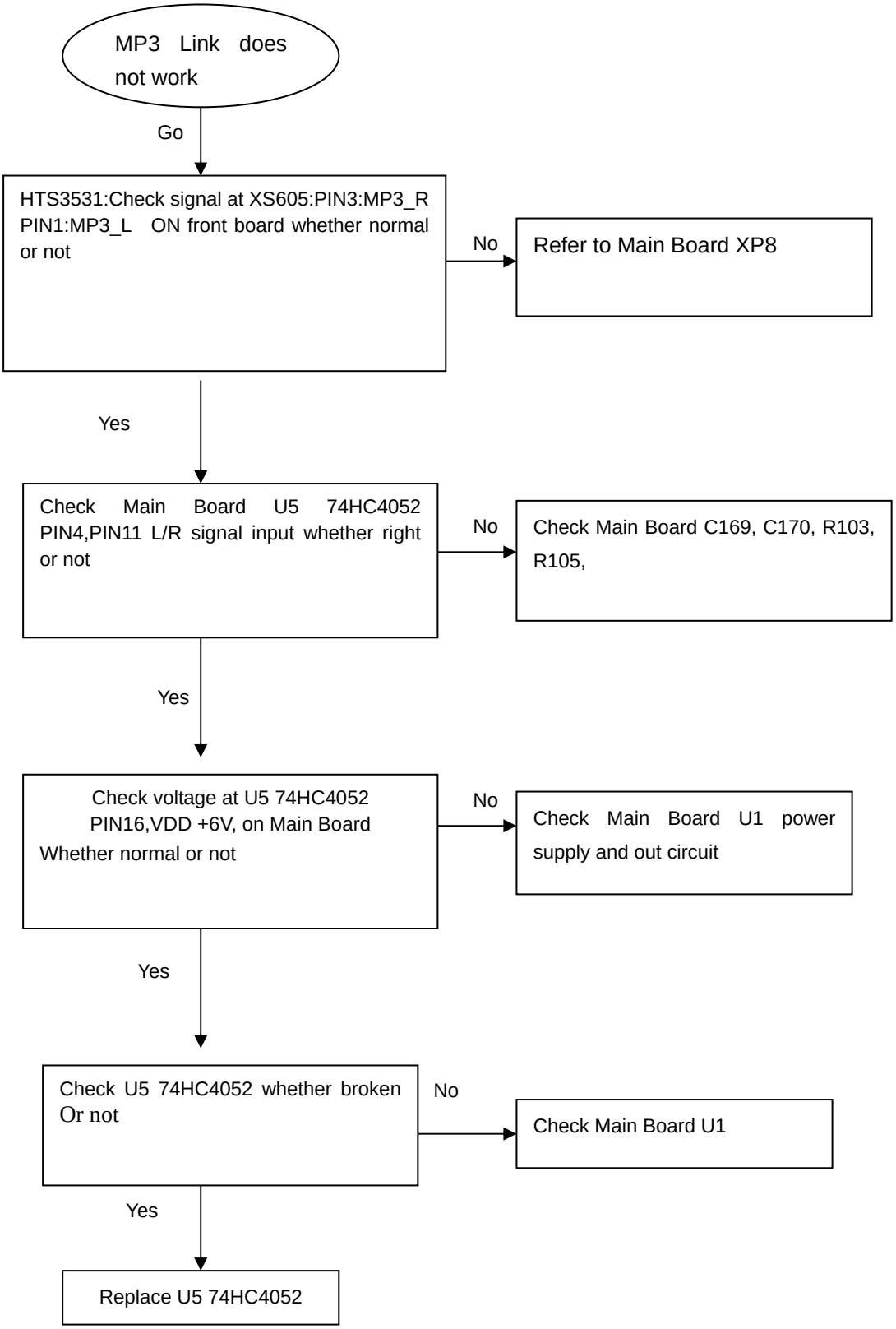
Tuner FM does not work


Tuner FM does not work
Go
Check voltage at Q6:+3.3V on Main Board whether normal or not
No
Refer to Power Board CN502
Yes
Check voltage +3.3V at Tuner module (TUN1 pin5) whether right or not
No
Check Main Board tuner power supply circuit.
Yes
Check Tuner module pin7,pin8,pin9,I2S output whether normal or not
No
Change the Tuner module
Yes
Check the U1 PIN53, PIN54. I2C output on Main Board whether normal or not
No
Check Main Board U1 power supply circuit
Yes
Replace Main Board

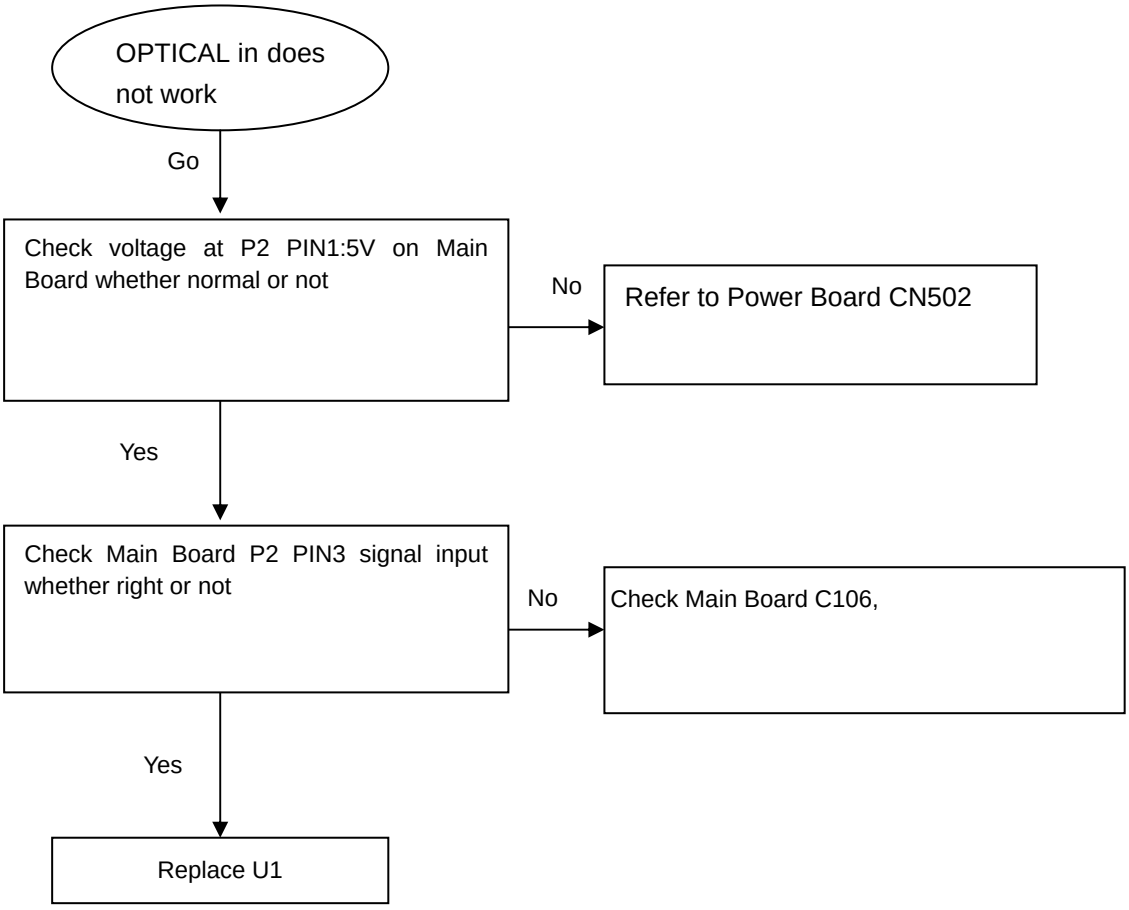
AUX in does not work


AUX in does not work
Go
Check voltage at U12 PIN8:12V on Main Board whether normal or not
No
Refer to Power Board CN502
Yes
Check Main Board U5 PIN2,PIN15 signal input whether right or not
No
Check C166,C167,R87,R91
Yes
Check voltage at U5 74HC4052 PIN16, +6V, on Main Board
Whether normal or not
No
Check Main Board U1 power supply and out circuit
Yes
Check U5 74HC4052 whether broken Or not
No
Check Main Board U1
Yes
Replace U5 74HC4052

MP3 Link does not work

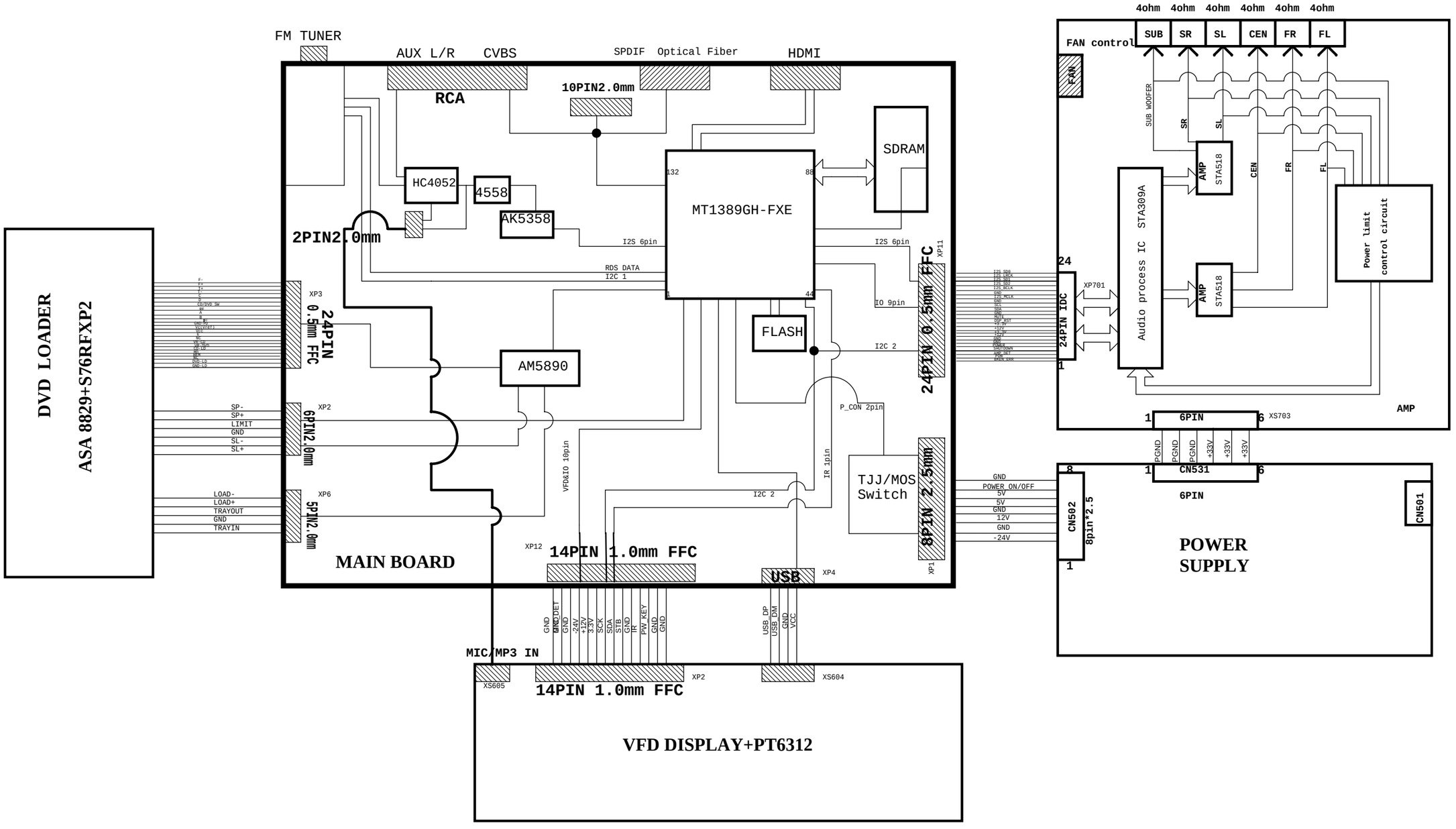

MP3 Link does not work
Go
HTS3531:Check signal at XS605:PIN3:MP3_R PIN1:MP3_L ON front board whether normal or not
No
Refer to Main Board XP8
Yes
Check Main Board U5 74HC4052 PIN4,PIN11 L/R signal input whether right or not
No
Check Main Board C169, C170, R103, R105,
Yes
Check voltage at U5 74HC4052 PIN16,VDD +6V, on Main Board Whether normal or not
No
Check Main Board U1 power supply and out circuit
Yes
Check U5 74HC4052 whether broken Or not
No
Check Main Board U1
Yes
Replace U5 74HC4052

OPTICAL IN does not work


OPTICAL in does not work
Go
Check voltage at P2 PIN1:5V on Main Board whether normal or not
No
Refer to Power Board CN502
Yes
Check Main Board P2 PIN3 signal input whether right or not
No
Check Main Board C106,
Yes
Replace U1

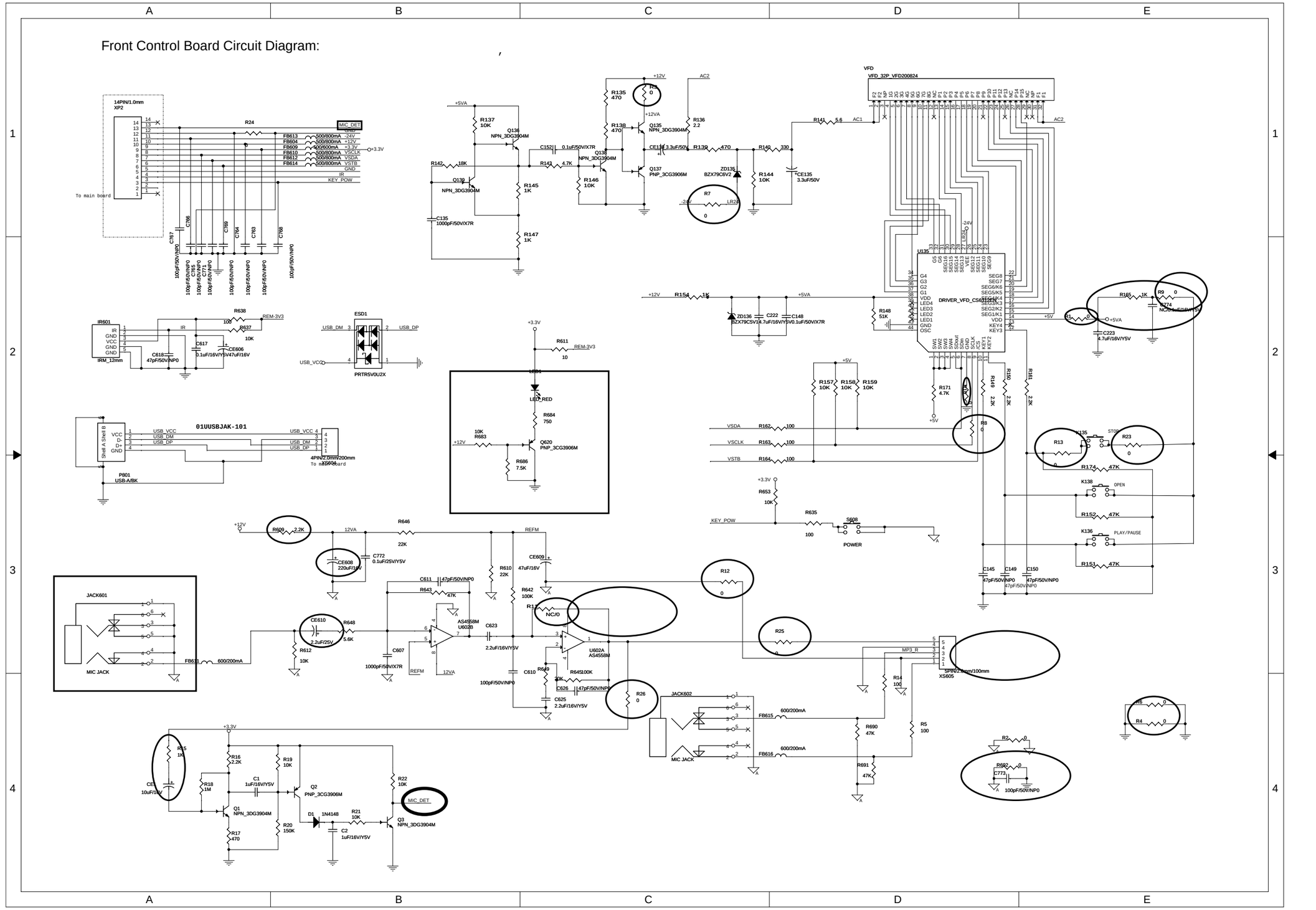
6-1

HTS3531 BLOCK / WIRING DIAGRAM



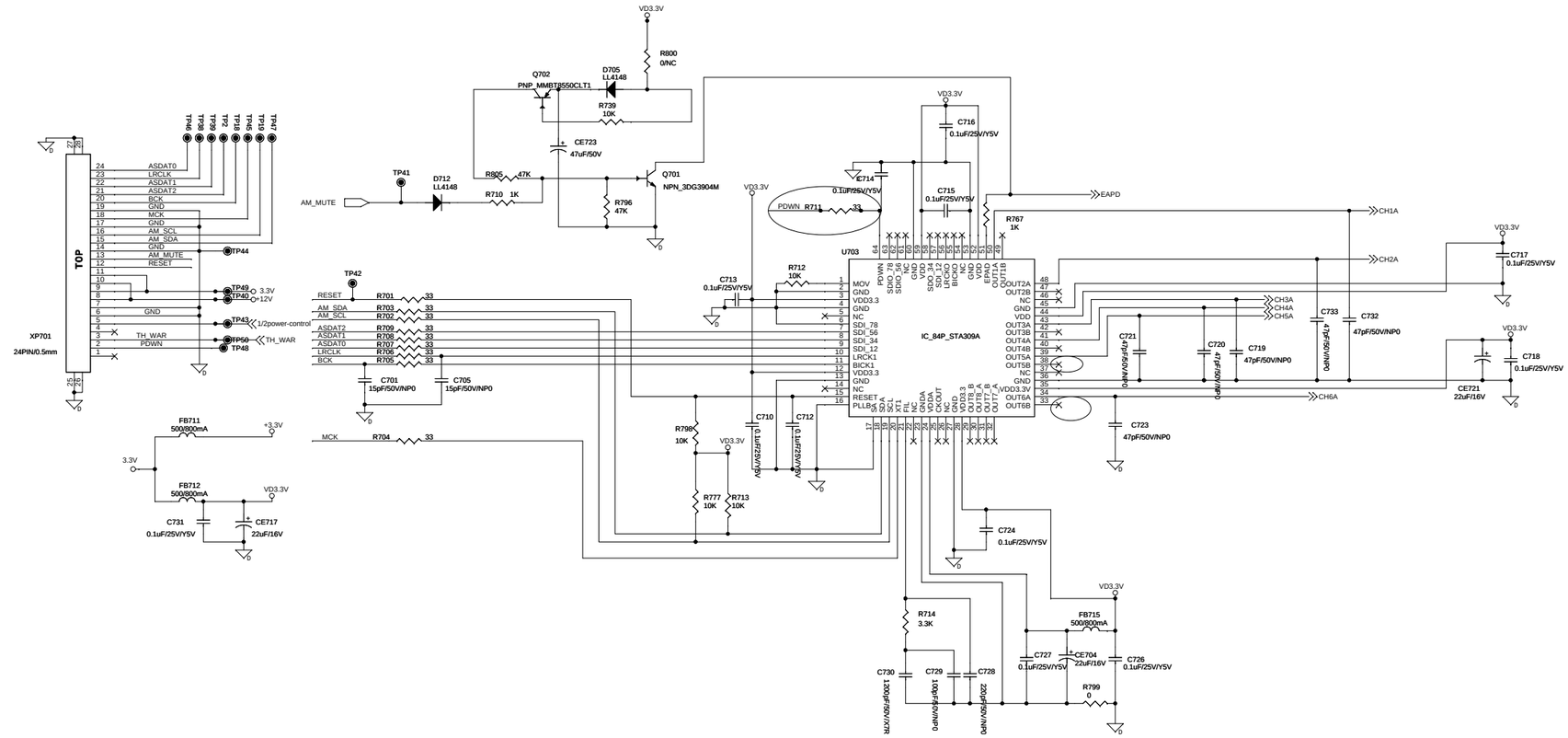
7-1

Front Control Board Circuit Diagram:



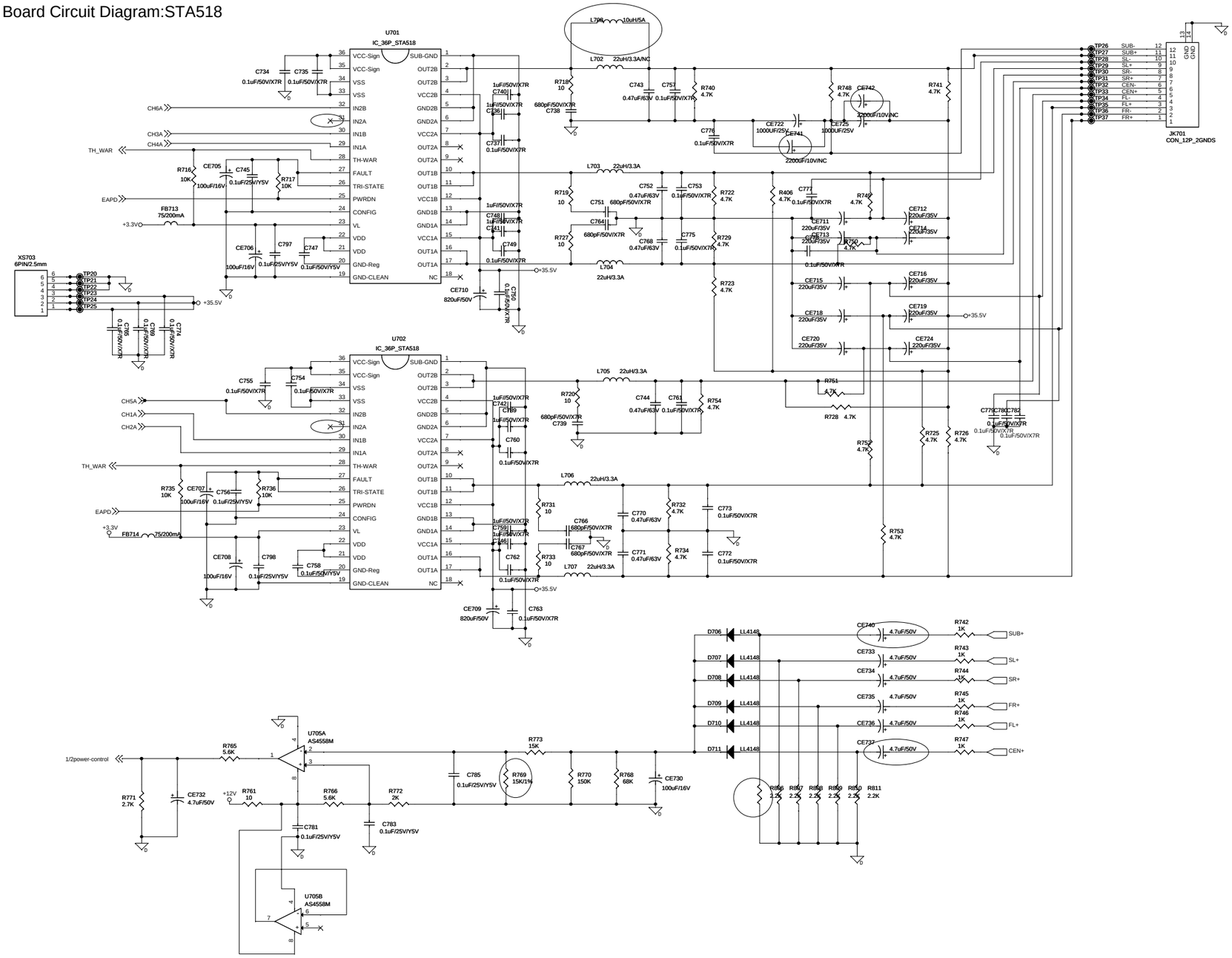
7-2

Amplifier Board Circuit Diagram:STA309A



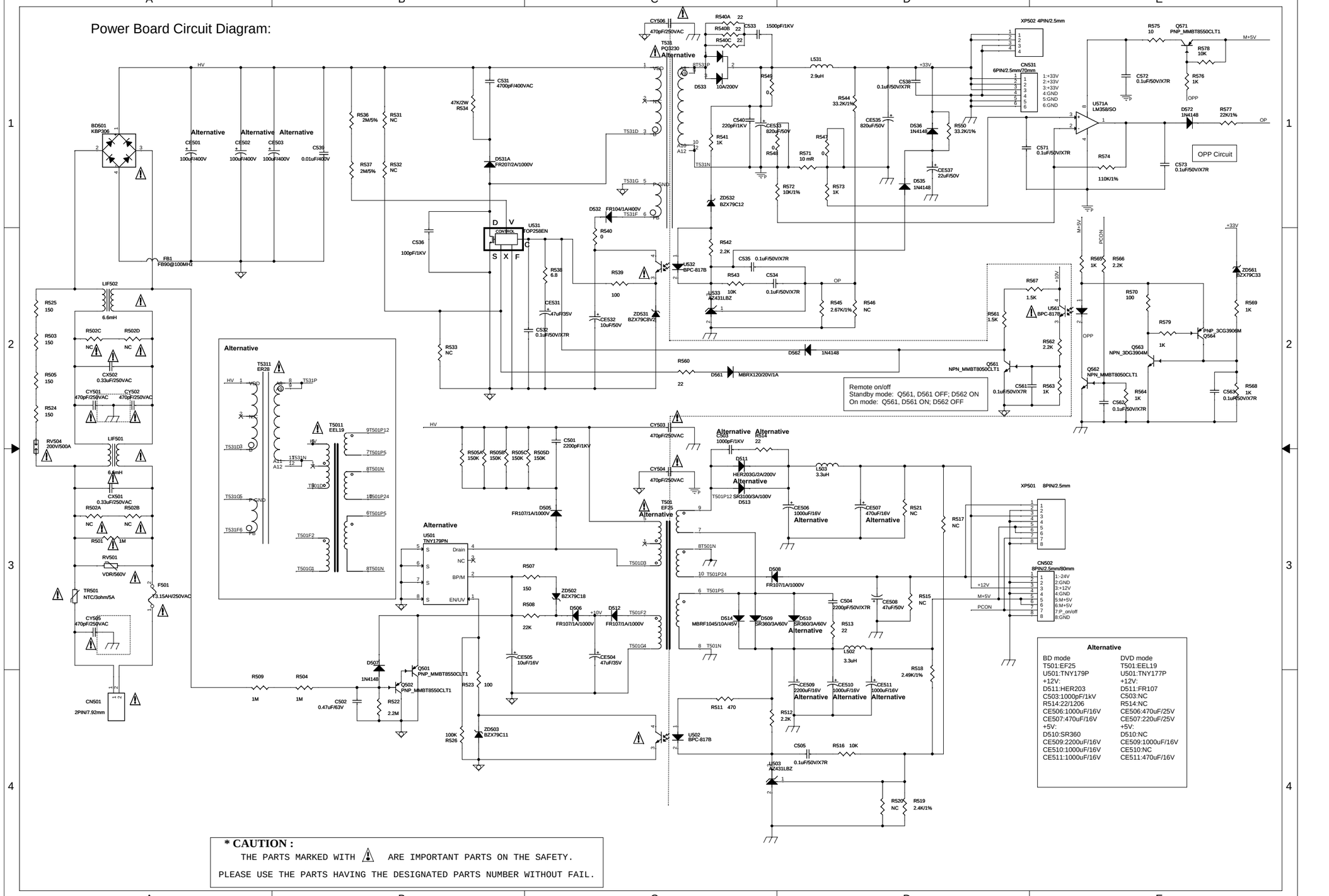
7-3

Amplifier Board Circuit Diagram:STA518



7-4

Power Board Circuit Diagram:



*** CAUTION :**

THE PARTS MARKED WITH ⚠ ARE IMPORTANT PARTS ON THE SAFETY.

PLEASE USE THE PARTS HAVING THE DESIGNATED PARTS NUMBER WITHOUT FAIL.

7-5

Main Board Circuit Diagram: Power Supply

+12V: +12V(+-10%)
+5V: +5V(+-2.5%)

TO POWER BOARD

XP1
8PIN/2.5mm

POWER_ON/OFF

C125
0.1uF/25V/Y5V

FB1 300/2A

VCC

C1
0.1uF/25V/Y5V

R1 0/NC
Q1
PNP_PBSS5320T
MO_VCC
C3
1uF/50V/Y5V
R14
4.7K
R2
200
EN1

R3 0/NC
Q2
PNP_MMBT8550CLT1
+P12V
C4
0.1uF/25V/Y5V
R4
22K
R6 4.7K
100mA
+12V
CE2 0.1uF/25V/Y5V
47uF/16V
C5

R5 1.3K
D72 L4148 EN1

PCON
R9 1K
R10 4.7K
Q3
NPN_3DG3904M
EN

R74 1.3K
EN
PNP_MMBT2907ALT1
Q32
R11 27K
+P12V
R13
4.7K
-P24V
Q5
NPN_3DG9014M
R43 0/NC
C9
0.1uF/25V/Y5V
FB4
500/500mA
-24V

+12V: +12V(+-10%)
+5V: +5V(+-2.5%)

MO_VCC
FB2
500/500mA
CE1
47uF/16V
AVCC
C2
0.1uF/25V/Y5V

DV33
R7 0
CE3
47uF/16V
RFV33
C6
0.1uF/25V/Y5V

FB3
500/500mA
CE4
47uF/16V
89G_3V3
C7
0.1uF/25V/Y5V

DV33
R12 0/NC
P_ASM3403
3V3
R8
0/NC
C8
1uF/50V/Y5V
Q6
R15 220
EN1

Change to PMOS ASM3403; For StandBy power

RESET Circuit

89G_3V3
R18 15K/1%
R19 3.3K
R20 22K
TP1
URST#
R88 0
AM_RST
R21 3.3K
Q8
NPN_3DG3904M
Q9
NPN_3DG3904M
R22 4.7K/1%
Cx
CE5
22uF/10V
C10
0.1uF/25V/Y5V
Cx Close to IC pin

OFF-PAGE CONNECTION

URST# URST# [2]

VCC
D1
RL207/2A/1000V
378mA
R16 4.3/2W
440mA
R17
1/1W
Q10
PNP_3CA8550D
TR_B1
DV33
R24 20K/1%
CE7
220uF/16V
C761
1000pF/50V/X7R
C12
0.1uF/25V/Y5V
REGO1
R26 12K/1%

TR_B2
Q7
PNP_3CA8550D
V12
R23 51K/1%
REGO2
R25 10K/1%/NC
CE6
220uF/16V
C762
1000pF/50V/X7R
C11
0.1uF/25V/Y5V

MO_VCC
R650
0 NC
U20
CE6200
Vin Vout
Vss
CE NC
3V3
C101
0.1uF/25V/Y5V
C102
0.1uF/25V/Y5V

7-6

Main Board Circuit Diagram:MT1389GH

MT1389GH
LQFP176
V1.0

OFF-PAGE CONNECTION

DRAM I/F
S-FLASH
VIDEO I/F
AUDIO I/F
SERVO I/F
TMDS I/F

SERVO RF DeCAP.

Close to IC Pin

RF Reference

Chip De cap.

Crystal

Put these circuits as closer as possible to MT1389

USB I/F

USB signal:
1),Via on signal is forbidden;
2),differential impedance must control at 90 ohm.

USB Connector

RS-232

Very Important to reduce Noise

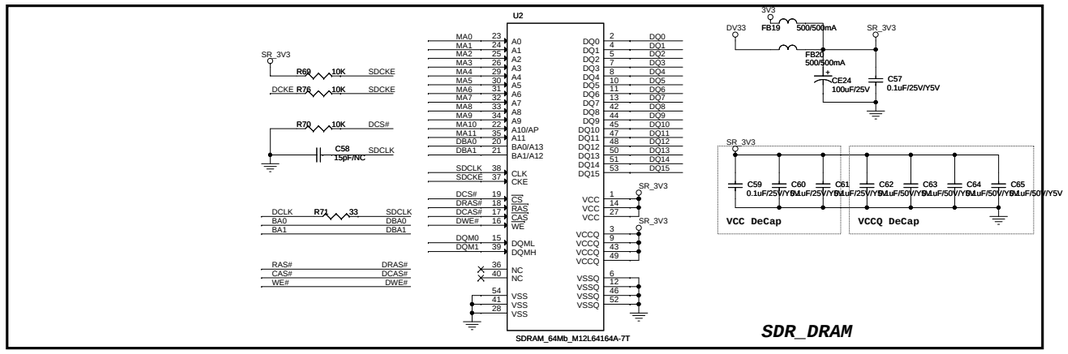
Option1

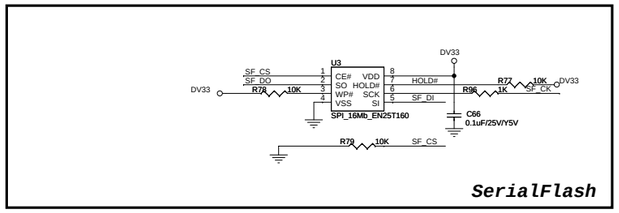
Option2: like 89G SERVO PIN.

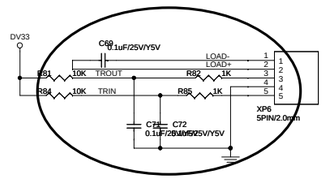
Audio

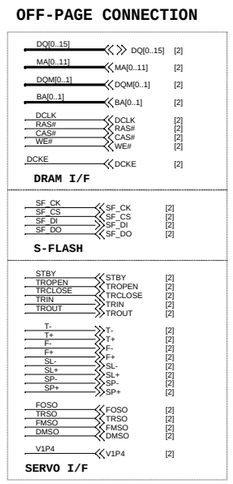
7-7

Main Board Circuit Diagram:SDRAM & FLASH









7-8

Main Board Circuit Diagram:AUDIO IN

TUNER_L R92 10K C163 1uF/50V/Y5V AL_CH2
R154 3K/NC
TUNER_R R97 10K C164 1uF/50V/Y5V AR_CH2
R157 3K/NC

AUX2_L R87 10K C166 1uF/50V/Y5V AL_CH3
R111 3K
AUX2_R R91 10K C167 1uF/50V/Y5V AR_CH3
R113 3K

MIC_ALR C168 1uF/50V/Y5V R104 4.7K MIC_R
MIC_ALR C176 1uF/50V/Y5V R107 4.7K MIC_L

MP3_AL R103 10 C169 1uF/50V/Y5V AL_CH4
R158 3K
MP3_AR R105 10 C170 1uF/50V/Y5V AR_CH4
R160 3K

AL_CH3 R164 150K
AR_CH3 R165 150K
AL_CH4 R173 150K
AR_CH4 R174 150K
AL_CH2 R175 150K/NC
AR_CH2 R176 150K/NC
+6VA
R162 22K
CE31 47uF/16V
R163 22K

AR_CH2
AR_CH3
AR_CH4
AL_CH2
AL_CH3
AL_CH4
A_SW0
A_SW1
U5 74HC4052
VCC GND VEE
+6VA
R88 2K
C73 0.1uF/25V/Y5V
CE30 47uF/16V
C174 1uF/50V/Y5V MIC_R
C175 1uF/50V/Y5V MIC_L
470 R93 AD_INR
100K R95
C74 470pF/50V/X7R
R94 470 AD_INL
R98 100K
C75 470pF/50V/X7R
R102 4.7K
R99 4.7K
3V3
R107 10K
R112 4.7K
R106 2K
Q19 N_ASM3402M
MIC_CON R114 10K
Q21 NPN_3DG3904M

Change to NMOS ASM3402

OFF-PAGE CONNECTION

MCK [4]
LRCK [4]
BCK [4]
ADC_DAT [2]
ADC_VRST# [2]
TUNER_L [8]
TUNER_R [8]

ADC & SW I/F

A_SW0
A_SW1
SPDIF_IN1 [2]
SPDIF_IN2 [2]

SPDIF Dx I/F

5PIN/2.0mm XP8
MP3_AL
MP3_AR
MIC_LR R113 100/NC MIC_ALR
R115 100/NC
PS
RCA/4h
RCA/6h
AUX2_R
AUX2_L
CVBS_O
COAX_IN
C114 100pF/50V/NP0
C115 100pF/50V/NP0
C116 100pF/50V/NP0
C117 100pF/50V/NP0
C118 100pF/50V/NP0

+12V
R609 330
12VA
R646 22K
REFM
CE608 47uF/16V
C760 0.1uF/50V/Y5V
C611 47pF/50V/NP0
R643 47K
R610 22K
CE609 47uF/16V
100K R642
MIC_LR
R648 5.6K
C609 2.2uF/16V/Y5V
R612 10K/1%
C607 1000pF/50V/X7R
AS4558M U603A
C623 2.2uF/16V/Y5V
U602B AS4558M
R156 100 MIC_ALR
C610 100pF/50V/NP0
R649 20K
R645 20K
C626 47pF/50V/NP0
C625 2.2uF/16V/Y5V

SPDIF IN

SP_VCC
AVCC
FB23 500/500mA
C79 0.1uF/25V/Y5V
Optical
P2 S/PDIF IN
SPDIF_IN2
C106 0.1uF/25V/Y5V
R116 75
C80 330pF/50V/X7R

R120 0/NC
3V3
C81 0.1uF/25V/Y5V
U7 AD8061/NC
SPDIF_IN1
R121 0
R125 75
C83 330pF/50V/X7R
R122 75/NC
C82 0.01uF/50V/Y5V
L11 1.8uH/25mA
COAX_IN
R123 75
C171 220pF/50V/NP0
D4 PESD_PGB101

Coaxial

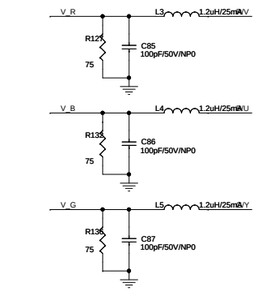
C138 47pF/50V/NP0
R216 10K
U12A AS4558M
AD_INR R218 1K
C156 0.1uF/25V/Y5V
+6VA
R220 100K/NC
C172 10uF/10V/Y5V
5.6K R253
ADC_INR
C142 47pF/50V/NP0
R226 10K
R225 100K/NC
AD_INL R227 1K
C155 0.1uF/25V/Y5V
U12B AS4558M
C173 10uF/10V/Y5V
5.6K R254
ADC_INL
+12VA

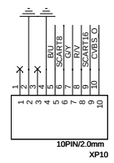
MO_VCC
FB22 500/200mA
CE40 100uF/25V
C77 0.1uF/25V/Y5V
3V3
R108 4.7
MORX140/40V/1A D23
ADC_INR 1V
ADC_INL 1V
CE43 10uF/25V
C78 0.1uF/25V/Y5V
U6 ADC_AK5358A
AINR AINL CKS1 VCOM AGND VA VD DGND
CKS0 CKS2 DIF PDN SCLK MCLK LRCK SDTO
BCK MCK LRCK ADC_DAT
R109 47K R110 10K R111 10K
ADC_VRST#
R117 1K
Q23 NPN_3DG3904M

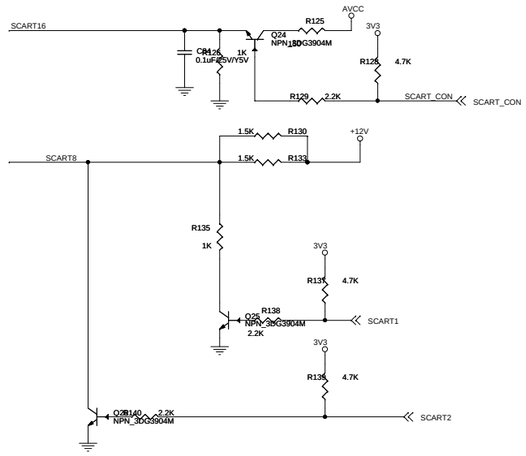
+6VA
+12VA
R435 22K
C153 0.1uF/25V/Y5V
CE33 100uF/16V
R436 100
+12V
R437 22K

7-9

Main Board Circuit Diagram:VIDEO I/F







SCART_CON	SCART16
0	CVBS OUT
1	RGB OUT

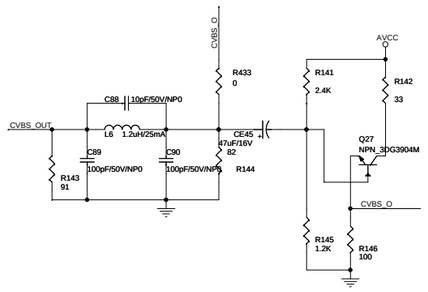
SCART2	SCART1	SCART8
1	×	0(
0	1	6V(16:9)
0	0	9.5-12V(4:3)

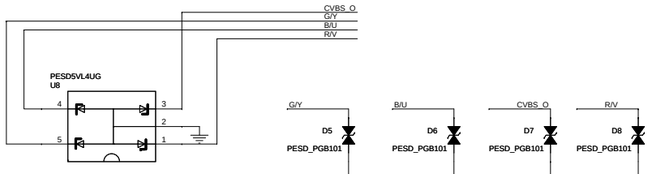
OFF-PAGE CONNECTION

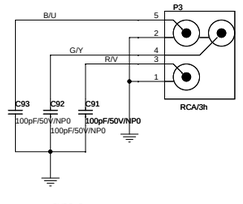
CVBS_OUT [2]
V_R [2]
V_B [2]
V_G [2]
VIDEO I/F

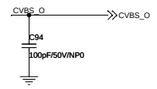
SCART_CON
SCART1
SCART2
SCART I/F

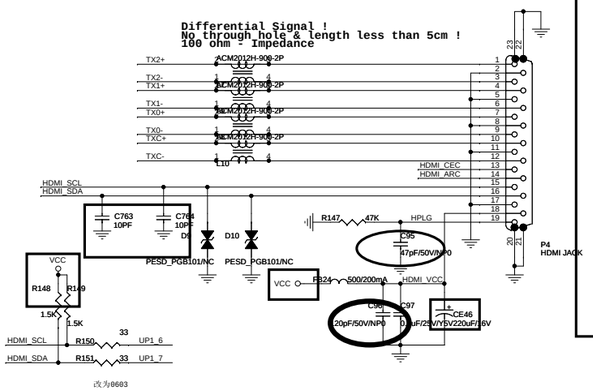
TXC+ [2]
TXC- [2]
TX0+ [2]
TX0- [2]
TX1+ [2]
TX1- [2]
TX2+ [2]
TX2- [2]
HPLG [2]
UP1_[6..7] [2]
TMDS I/F

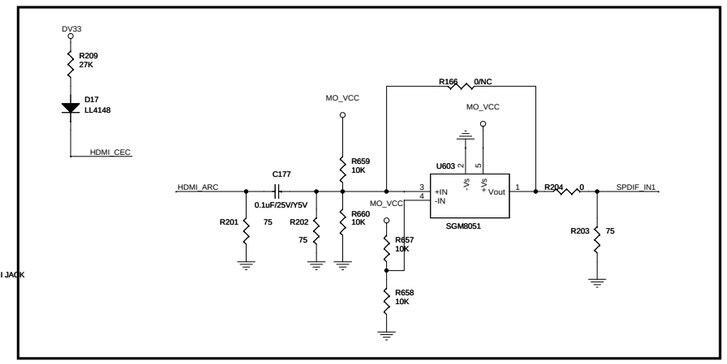








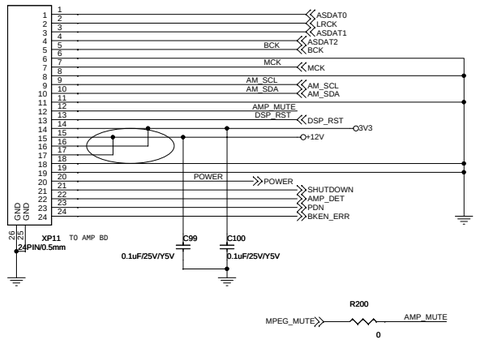


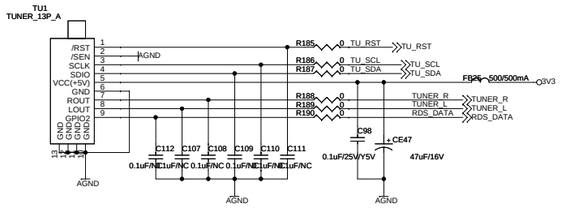


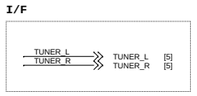
HDMI_CEC HDMI_CEC [2]
SPDIF_IN1 SPDIF_IN1 [2]

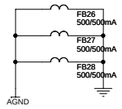
7-10

Main Board Circuit Diagram:AMP / FB / TUNER



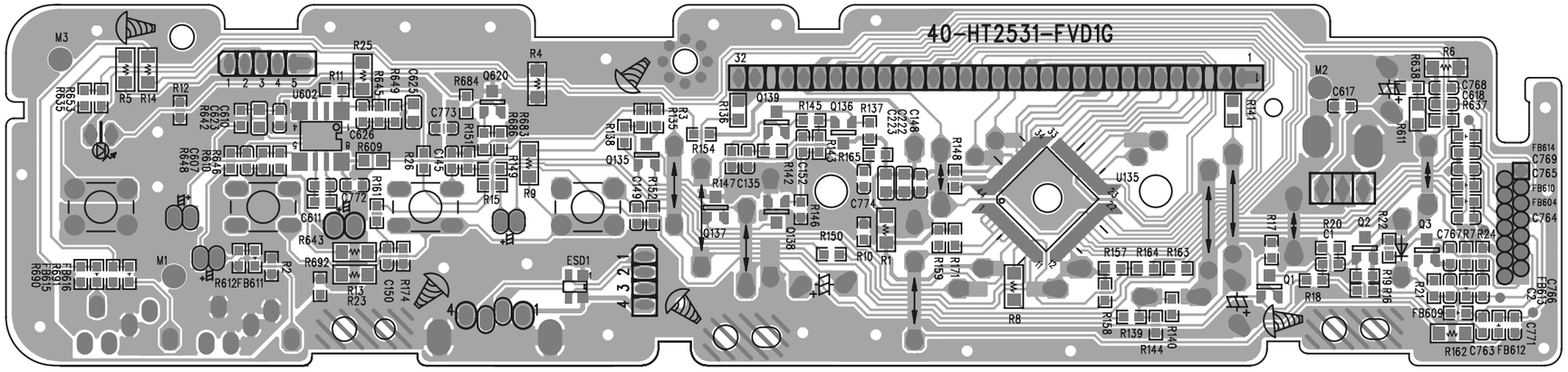






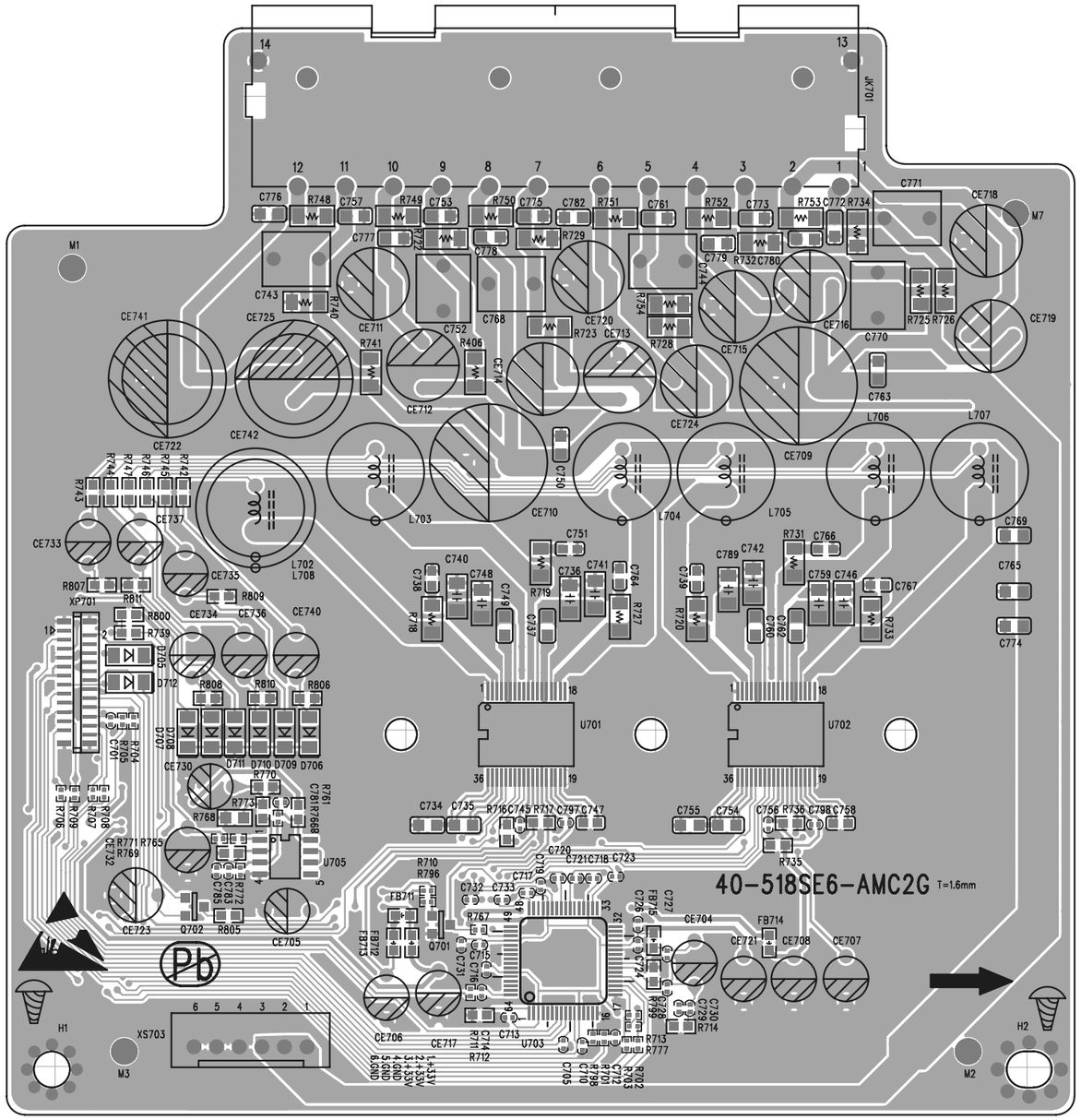
7-11

Front Control Board Print-layout (top side):



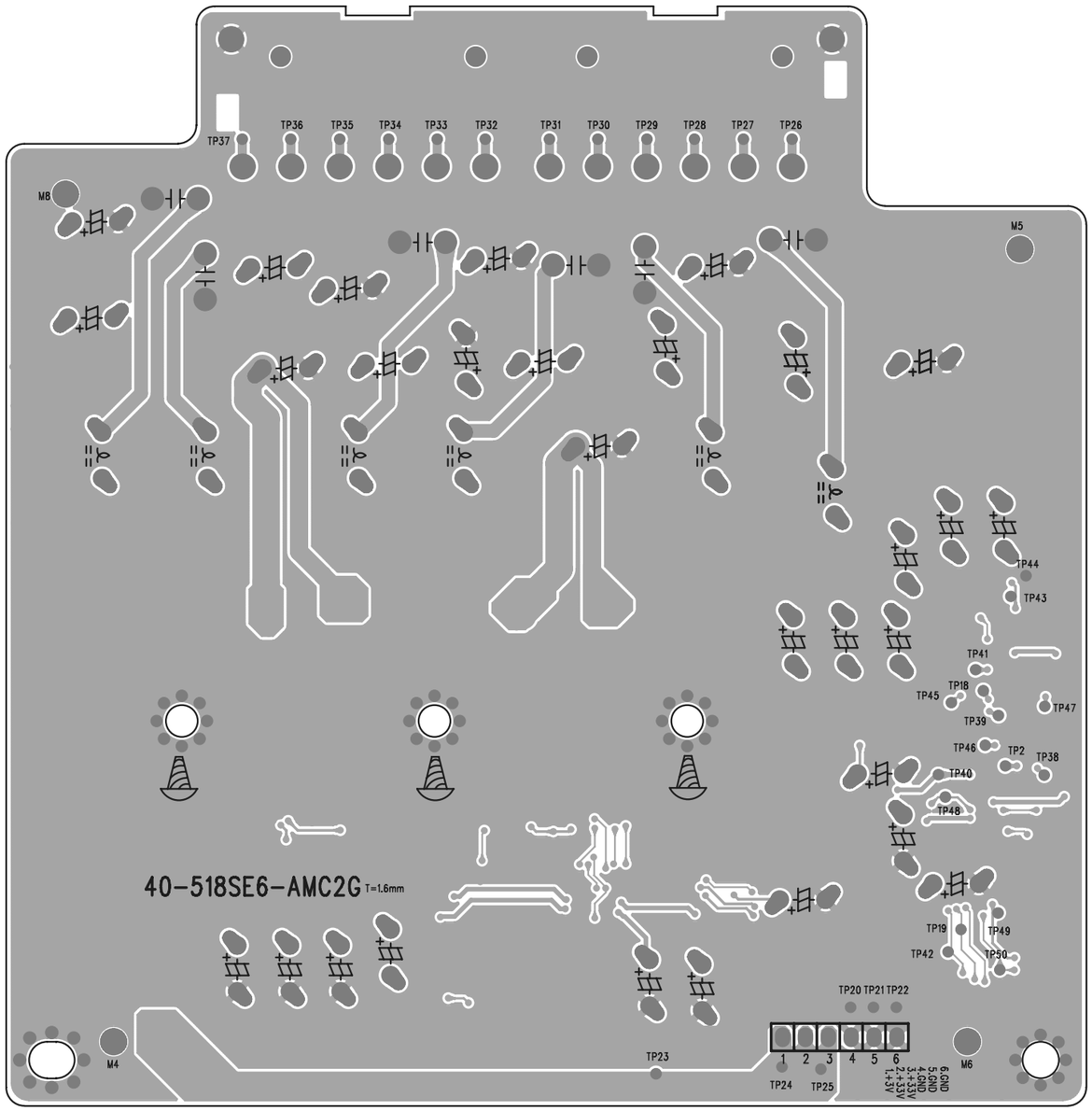
7-12

Amplifier Board Print-layout (top side):



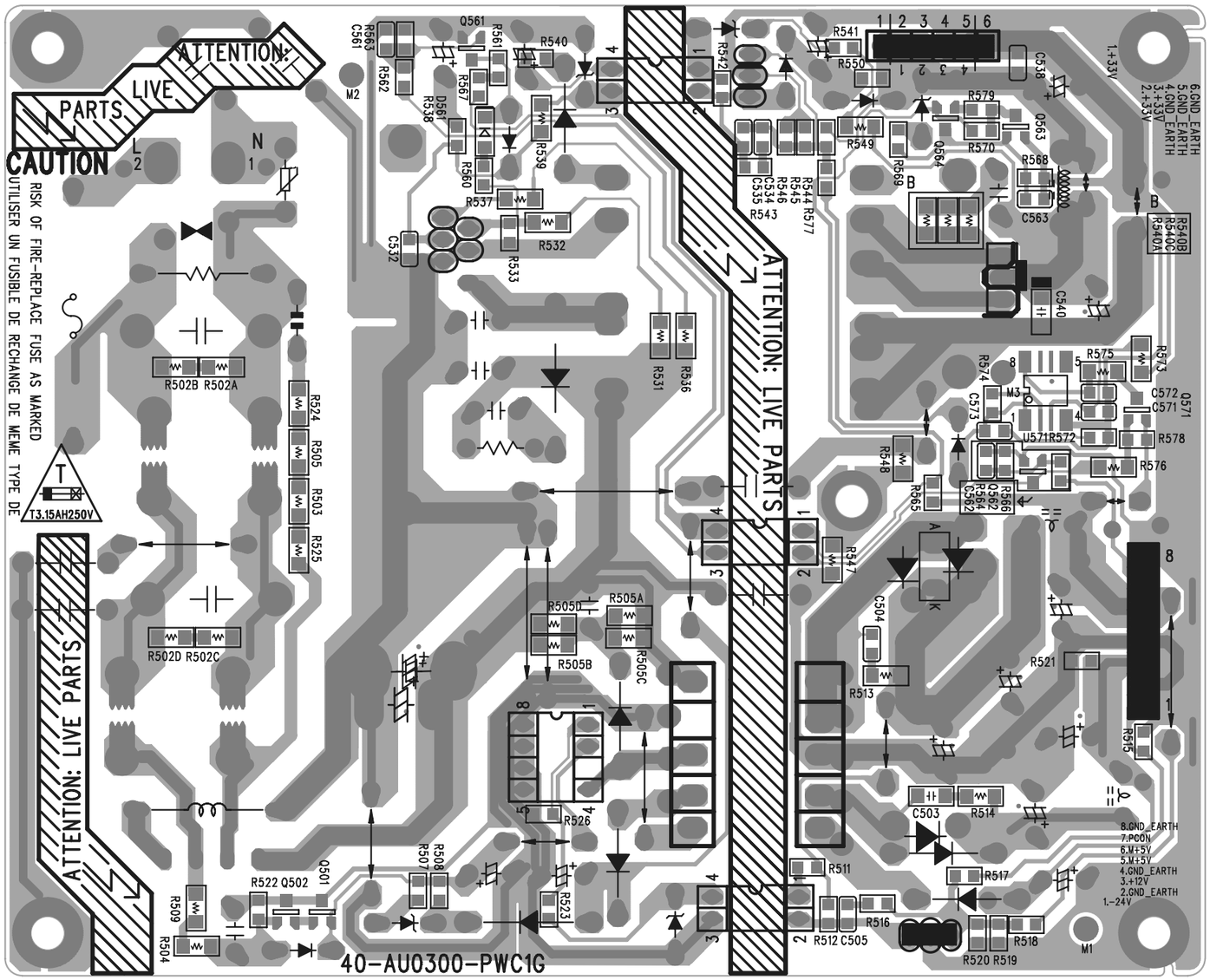
7-13

Amplifier Board Print-layout (bottom side):



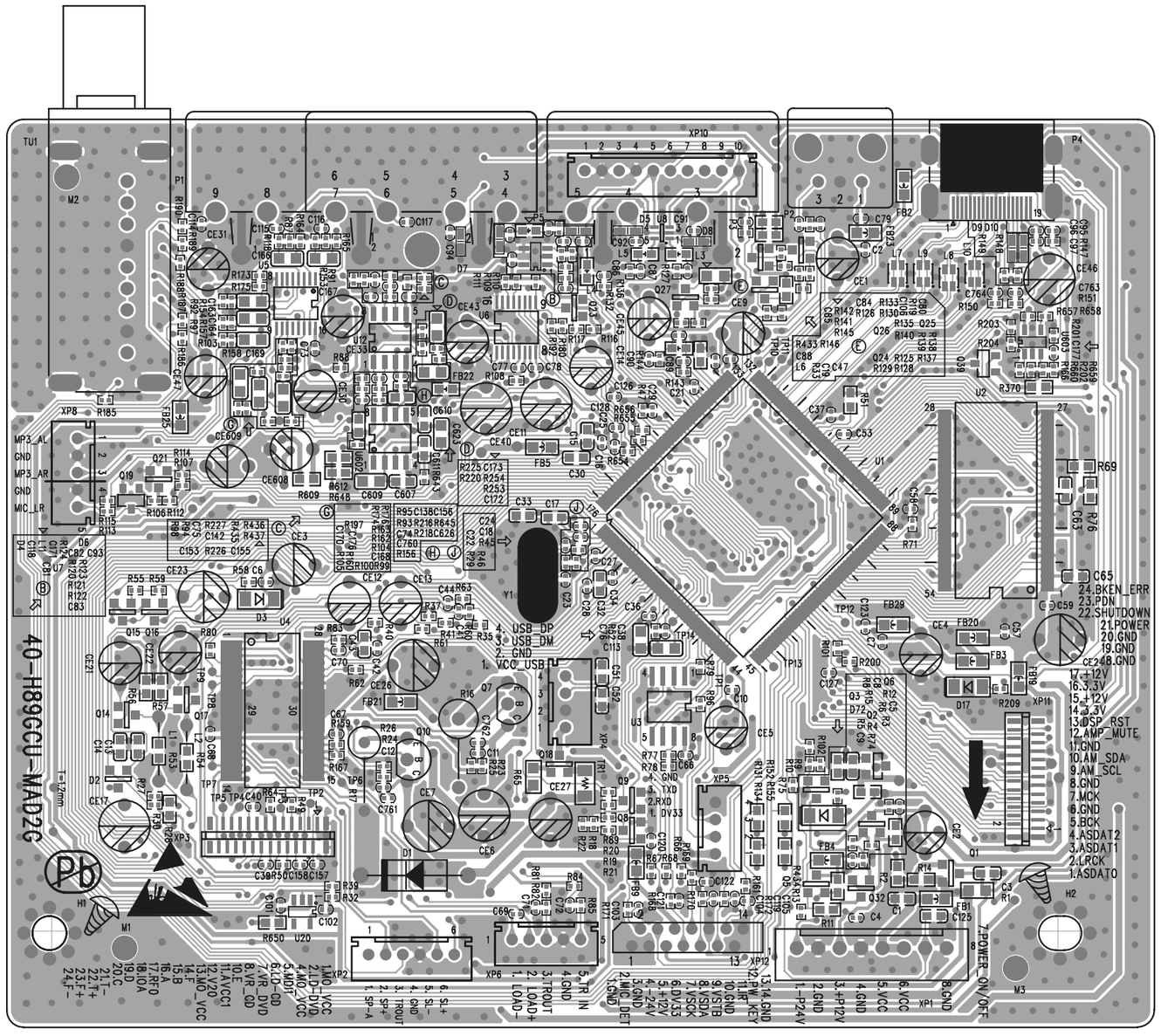
7-14

Power Supply Print-layout (top side):



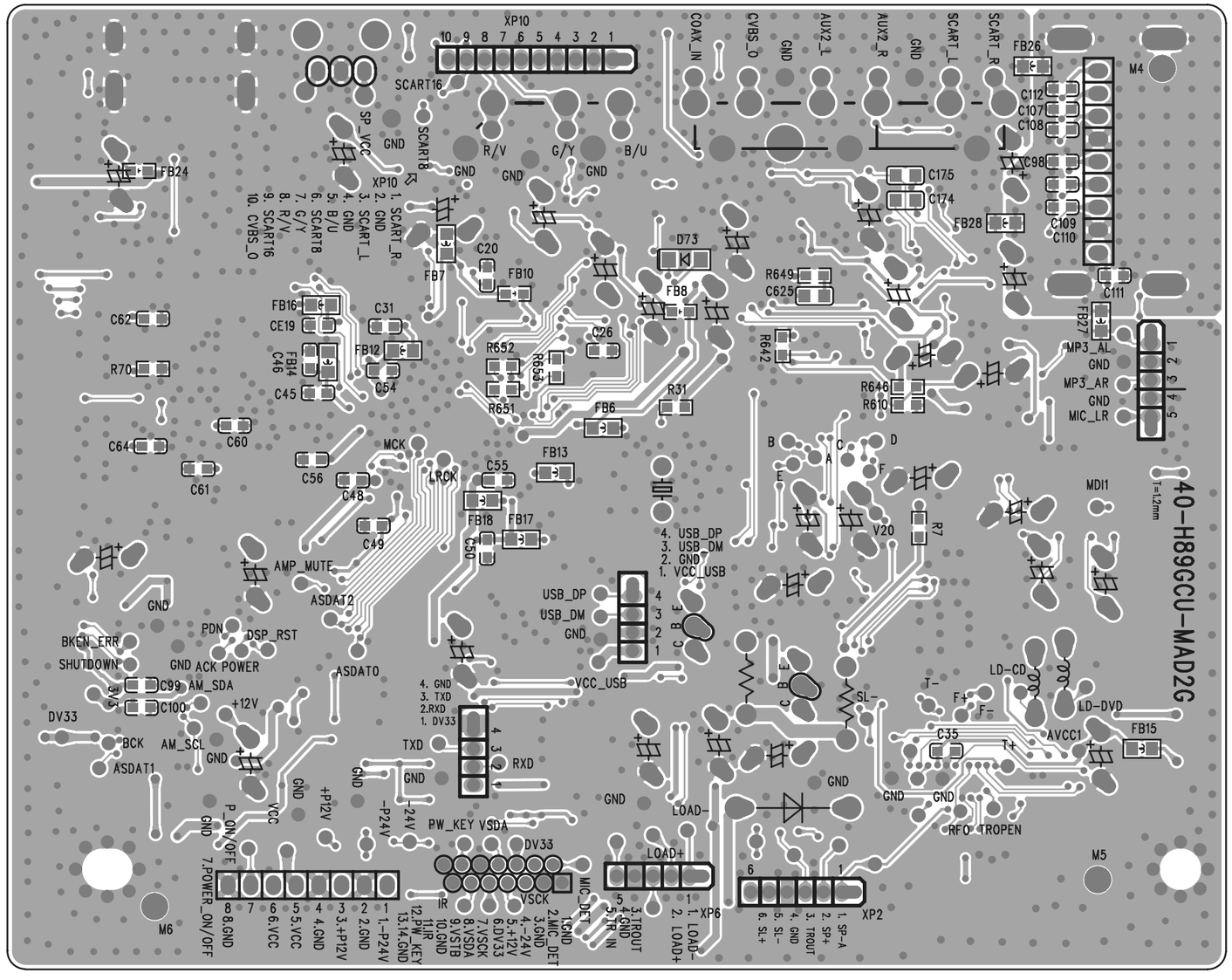
7-15

Main Board Print-layout (top side):

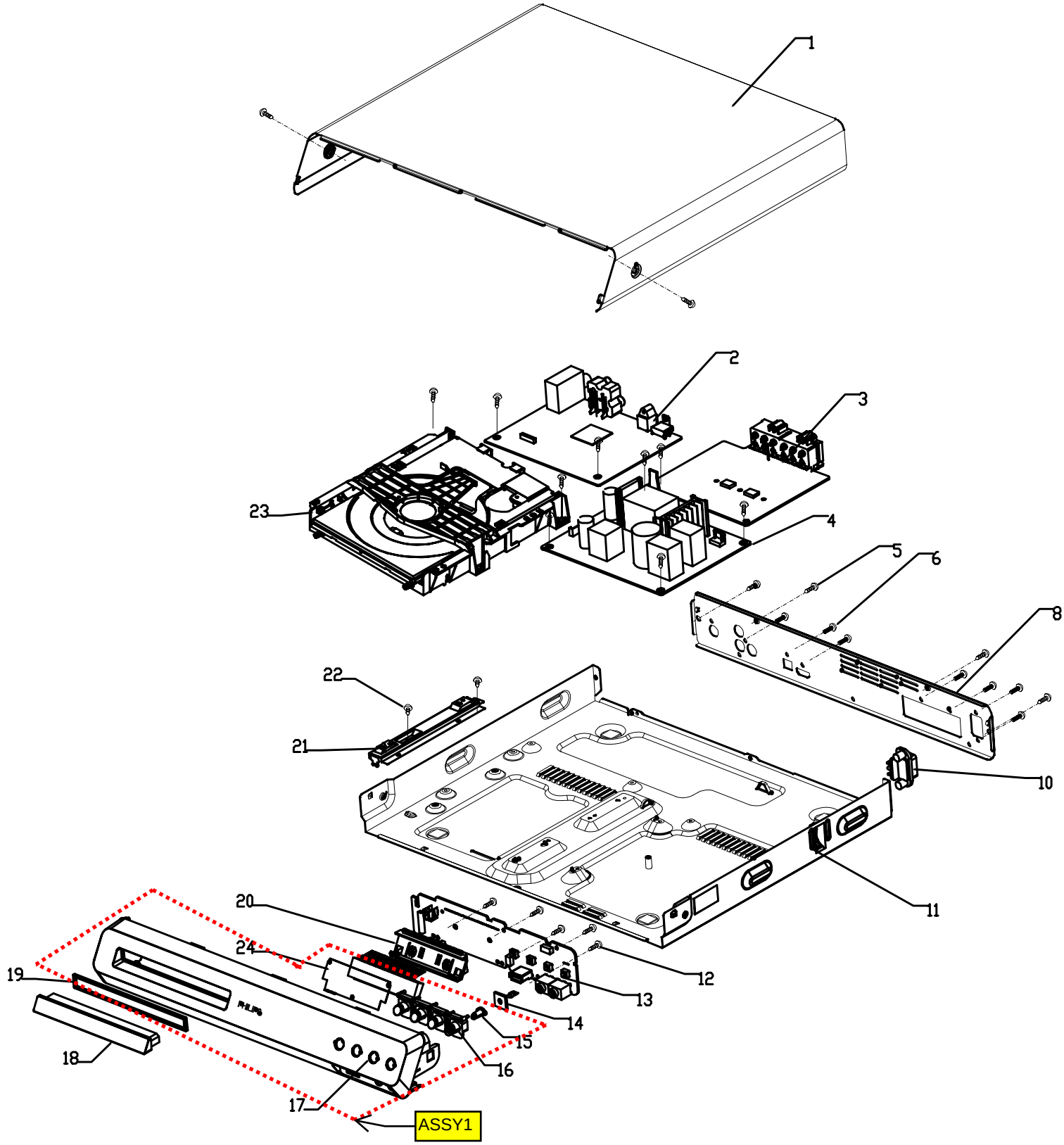


7-16

Main Board Print-layout (bottom side):



EXPLODED VIEW FOR HTS3531/12/51/94/98/F7/55/78/93



This is general mechanical exploded view .Please refer to the model set for the detailed information.

ASSY1 includes components:15,16,17,19,24

REVISION LIST

Version 1.0

* Initial release for HTS3531/12/51/94/98

Version 1.1

*Add HTS3531/F7

Version 1.2

*Add HTS3531/55/78

Version 1.3

*Add HTS3531/93